# A BASELINE VASCULAR PLANT SURVEY FOR OCMULGEE NATIONAL MONUMENT, BIBB COUNTY, MACON, GEORGIA


Wendy B. Zomlefer and David E. Giannasi

*Department of Plant Biology*
*University of Georgia*
*Athens, Georgia 32602-7271, U.S.A.*
*wendyz@plantbio.uga.edu*

John B. Nelson

*A.C. Moore Herbarium*
*Department of Biological Sciences*
*University of South Carolina*
*Columbia, South Carolina 29208-0001, U.S.A.*

L.L. Gaddy

*terra incognita*
*125 South Edisto Avenue*
*Columbia, South Carolina 29205-3301, U.S.A.*



## ABSTRACT

Ocmulgee National Monument is administered by the National Park Service, United States Department of the Interior, and comprises 283.9 ha (701.5 acres) in two disjunct land parcels located in Macon, Bibb County, central Georgia. The park is significant for earthen mounds and other archeological sites associated with the Native American Mississippian cultures that settled along the Ocmulgee River. A floristic survey was conducted to provide Park Service personnel with a baseline vouchered plant species checklist, supplemented with salient information such as relative abundance, locality data, and general community type. Identifications of vouchers from prior surveys were also verified and incorporated into the annotated list that now totals 436 species of vascular plants. The five largest families are Poaceae (53 spp.), Asteraceae (36 spp.), Cyperaceae (33 spp.), Fabaceae (21 spp.), and Rosaceae (18 spp.). According to state rankings, one special concern species, *Cayaponia quinqueloba*, occurs within the study area, and approximately 24 percent of the non-cultivated flora is exotic. A vouchered checklist of vascular plants and descriptions of the general plant communities are included, as well as a list of unvouchered species previously reported from the park.

## RESUMEN

El Ocmulgee National Monument está administrado por el Servicio de Parques Nacionales, del Departamento de Interior de los Estados Unidos, y comprende 283.9 ha (701.5 acres) en dos parcelas disjuntas localizadas en Macon, Bibb County, Georgia central. El parque es significativo por los montículos de tierra y otros lugares arqueológicos asociados a las culturas nativas americanas del Mississippi cultures que se asentaron a lo largo del río Ocmulgee. Se realizó un estudio florístico para aportar al personal al servicio del parque un catálogo de especies de plantas con testigos, suplementada con información relativa a su abundancia, datos de la localidad, y tipo general de comunidad. También se verificaron las identificaciones de testigos de estudios anteriores que se incorporaron al catálogo que totaliza ahora 436 especies de plantas vasculares. Las cinco familias más grades son Poaceae (53 spp.), Asteraceae (36 spp.), Cyperaceae (33 spp.), Fabaceae (21 spp.), y Rosaceae (18 spp.). De acuerdo con la legislación del estado una especie protegida, *Cayaponia quinqueloba,* vive en el área de estudio, y aproximadamente el 24 por ciento de la flora no-cultivada flora es exótica. Se incluyen un catálogo de las plantas vasculares y descripciones de las comunidades vegetales, así como una lista de las especies citadas previamente del parque.


## INTRODUCTION

### Study Area

The "fall line" in Georgia is a prominent geological boundary ca. 32 km (20 mi) wide extending from Augusta southwest to Columbus (Fig. 1A) and represents the Mesozoic shoreline of the Atlantic Ocean. The ancient beach demarcates the flat and sandy upper Coastal Plain to the south from the rolling rocky hills of the Piedmont to the north and separates significantly different plant and animal communities. As a consequence, the diverse habitats within this narrow transition zone are characterized by a rich variety of flora and fauna (Wharton 1978). Settlements developed where rivers descend along the relatively steep slope of the fall line, forming rapids or waterfalls that were used to generate power, and provided natural stopping points for travel

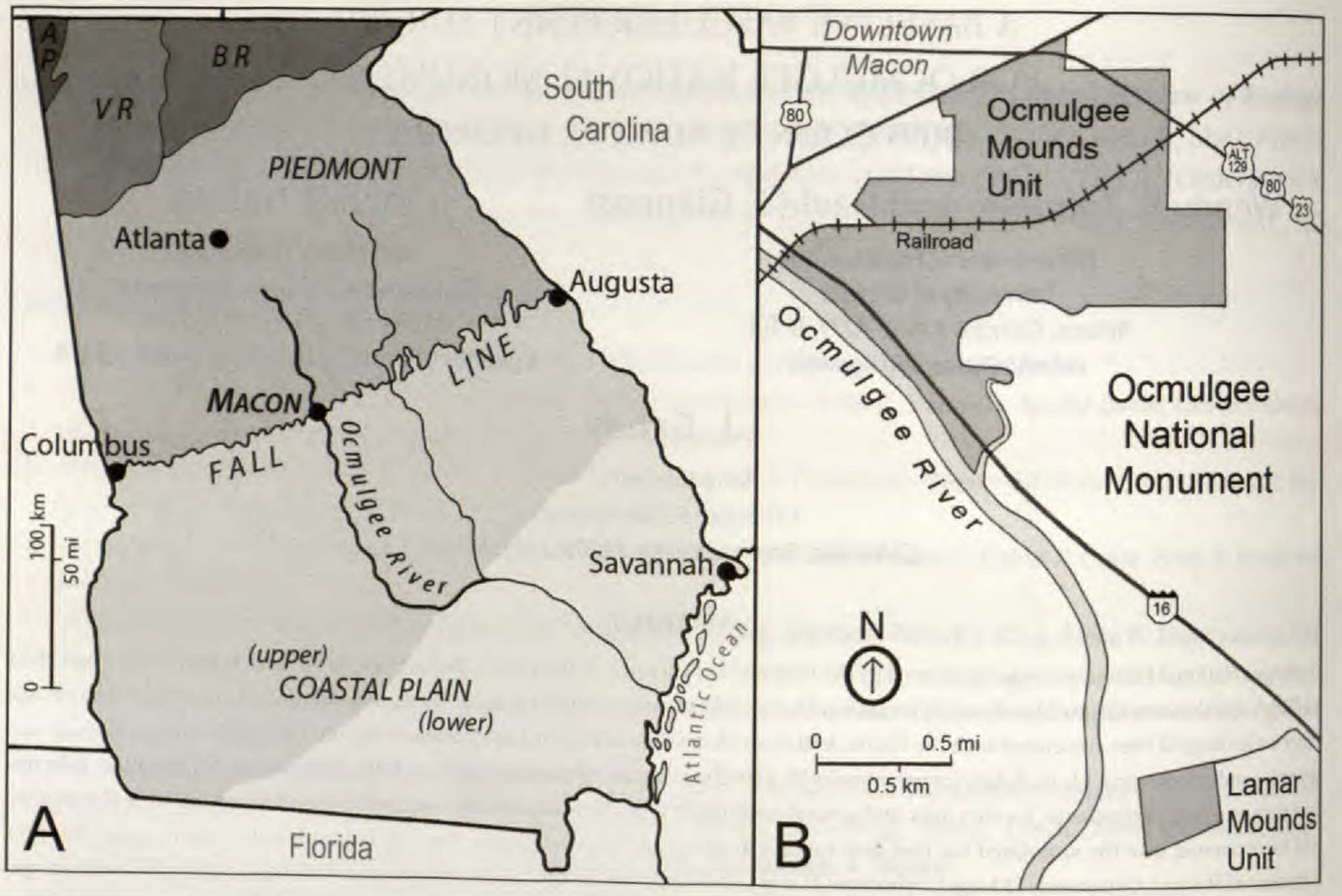


**Fig. 1. Location of Ocmulgee National Monument. A. Physiographic regions of Georgia, the fall line, and the Ocmulgee River. Abbreviations: AP = Appalachian Plateau, BR = Blue Ridge, VR = Valley and Ridge. B. Detail of eastern Macon, Georgia, showing location of the two land parcels comprising Ocmulgee National Monument: the Ocmulgee Mounds and Lamar Mounds units. A modified by WBZ from Wharton (1978); B modified by WBZ from Wheeler (2007) and NPS (2012d).**

and commerce. An example is the city of Macon, founded at the fall line of the Ocmulgee River. The river, whose Native American name (Okmulgee) translates as "where the water boils up," provides the principal watershed for much of the Piedmont and Coastal Plain of central Georgia (Fig. 1A).

Ocmulgee National Monument (OCMU), administered by the National Park Service (NPS, U.S. Department of the Interior), is located along the Ocmulgee River in eastern Macon (Bibb County) at the fall line (NPS 2012a). The park comprises 283.9 ha (701.5 acres) in two separate land tracts (Figs. 1B and 2): the much larger main park unit, Ocmulgee Mounds (265.7 ha, 656.5 acres), and the small detached parcel ca. 3.2 km (2 mi) south, the Lamar Mounds unit (18 ha, 45 acres). OCMU has significant archeological sites including nine earthen mounds associated with two Native American Mississippian cultures that settled along the river prior to European contact (Hally 1994; see "Brief History of OCMU with Emphasis on Land Use" below). Due to the rich cultural resources, OCMU is listed on the National Register of Historic Places and has been designated a Traditional Cultural Property (Wheeler 2007).

The study area is characterized by hot, humid summers and mild winters (National Weather Service 2012). The mean annual temperature is 16° C (60.0° F), with January the coldest month at 1.4° C (34.5° F), and July, the warmest at 33.2° C (91.8° F). Mean annual precipitation is 114.3 cm (45.0 in) per year. January has the highest average precipitation with 12.7 cm (5.0 in), and October, the lowest with 6.0 cm (2.37 in).

**Ocmulgee Mounds unit.**—The main park unit (Macon Plateau site or "Ocmulgee Old Fields;" coordinates 32.838194°, -83.602124°) is adjacent to the eastern side of downtown Macon and is bordered to the southwest by the Ocmulgee River, and to the south, by Walnut Creek (Figs. 1B and 2A). The park is bisected by the Norfolk Northern Railroad. Emery Highway (U.S. 80E) cuts across the northeastern corner of the property, and Interstate 16 passes through its southwestern border, parallel to the Ocmulgee River. The ca. 9 km (5.5 mi)

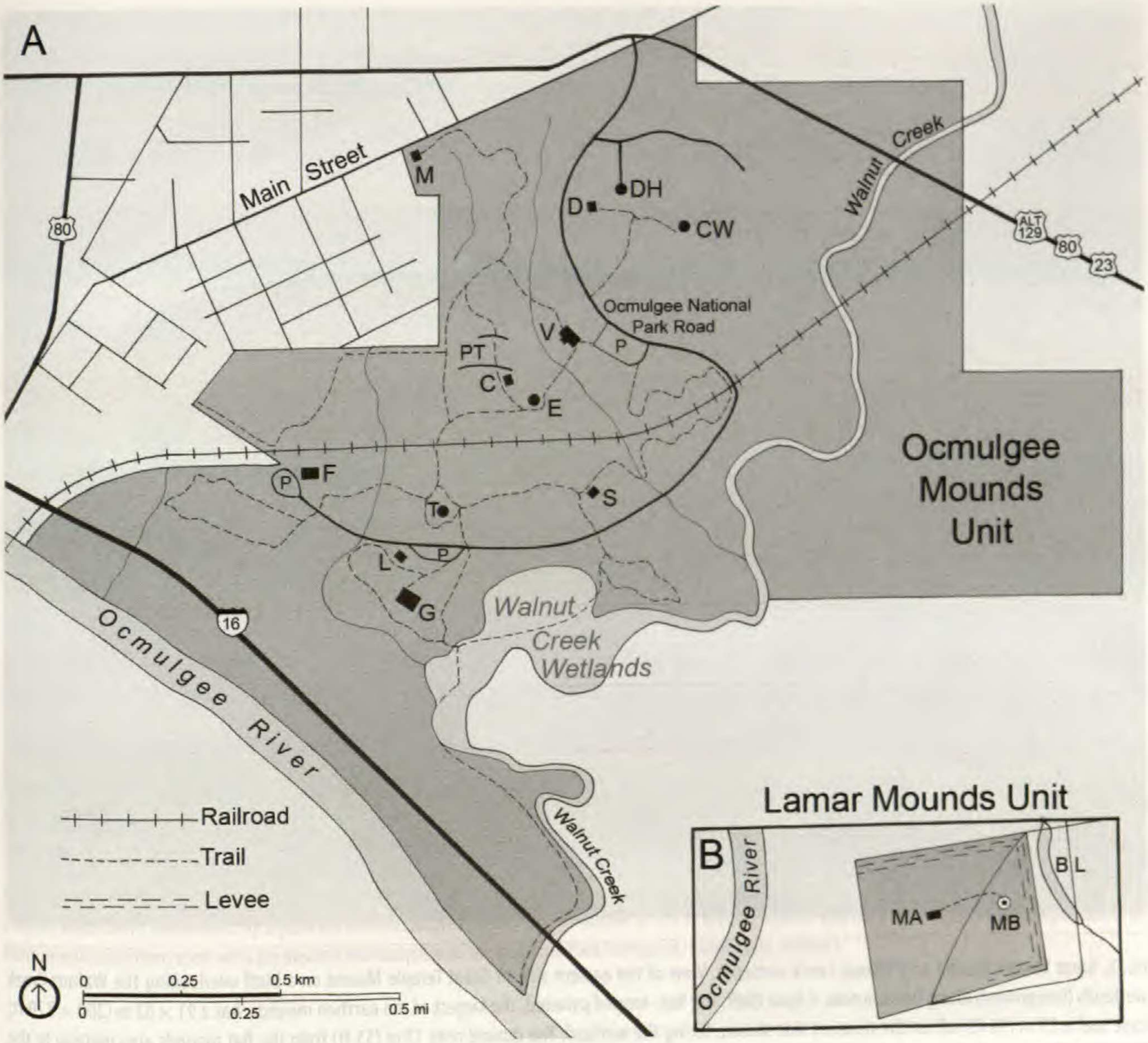


FIG. 2. Map of Ocmulgee National Monument, showing trails and locations of major cultural features. **A.** Ocmulgee Mounds unit, the main park. **B.** (inset). Lamar Mounds unit. Abbreviations: BL = Black Lake, C = Cornfield Mound, CW = Civil War earthwork, D = Dunlap Mound, DH = Dunlap House, E = Earthlodge, F = Funeral Mound, G = Great Temple Mound, L = Lesser Temple Mound, M = McDougal Mound, MA = Mound A (pyramidal mound), MB = Mound B (circular mound with spiral ramp), P = parking lot, PT = prehistoric trenches, S = Southeast Mound, T = trading post site, V = Visitor Center. A modified by WBZ from NPS (2005); B modified by WBZ from Wheeler (2007) and unpublished NPS map (G. LaChine, pers. comm.).

of hiking trails traverse upland forests and fields and pass along the swamps and open wetlands associated with the river and its tributary, Walnut Creek.

The most prominent landscape features at the Ocmulgee Mounds site are the seven rectangular earthen mounds that rise up to 17 m (55 ft; Greater Temple Mound, Fig. 3) above the relatively flat topography of 85–119 m (280–390 ft; Marsh 1986). Other historic resources date from early European settlement to more modern times, including a late seventeenth century British fort and trading post site, a Civil War gun emplacement, and a restored antebellum residence (Dunlap House). The Visitor Center includes a museum with exhibits and a major archeological collection with emphasis on the Early Mississippian culture that flourished in the main park parcel from 900 to 1100 AD. The park's natural and cultural resources attract about 123,000 visitors per year (NPS 2012b).

**Lamar Mounds unit.**—This isolated part of OCMU (Lamar Mounds and Village site; coordinates 32.812562°, -83.591580°) is located between the Ocmulgee River and Interstate 16, ca. 5 km (3 mi) southeast of

Fig. 3. Great Temple Mound and Walnut Creek wetlands. View of the eastern side of Great Temple Mound on a bluff overlooking the Walnut Creek wetlands (foreground) along Opelofa trail, 9 April 2009. The flat–topped pyramid, the largest of the earthen mounds, has a 91 × 82 m (300 × 270 ft) base and is 27 m (90 ft) tall on the terraced side shown, facing the wetland. The mound rises 17 m (55 ft) from the flat mounds area plateau to the north. Photo credit: W.B. Zomlefer.

downtown Macon (Fig. 1B). The property is in swampland slightly elevated from the surrounding floodplain (ca. 85 m, 280 ft) and an oxbow lake (Black Lake) nearby to the east (Fig. 2B; Wheeler 2007). An unfinished levee, constructed in the late 1930s to protect the site from flooding, borders the northern, eastern, and part of the southeastern sides of the property. The unit is the type site of the Lamar culture (Late Mississippian, 1350–1600 AD; Williams 1999) and comprises a palisaded village area (8.7 ha, 21.5 acres) surrounding two large earthen mounds: a rectangular (pyramidal) mound (Mound A in Figs. 2B and 4), 10.7 m (35 ft) tall, and an unusual circular mound with a spiral ramp (Mound B, 6.1 m [20 ft] tall). Each mound is enclosed by a locked chain-link fence. The Lamar Mounds unit has difficult access via a county road and an overgrown foot trail and is open to the public via guided tours on a very limited basis.

**Brief History of OCMU with Emphasis on Land Use**

Based on archeological evidence, Ocmulgee National Monument was occupied continuously by a series of native North American tribes for ca. 12,000 years before European contact in the mid-seventeenth century (summaries in Pope 1956; Marsh 1986; Hally 1998; NPS 2005; Wheeler 2007; Williams 2008). The most significant cultural period began when the early Mississippians (900–1100 AD) migrated to the area from the central Mississippi River Valley. This sophisticated and stratified society built a town (Ocmulgee Fields) supported by an agricultural economy managed by master farmers along the Ocmulgee River bottomlands. Their ceremo-

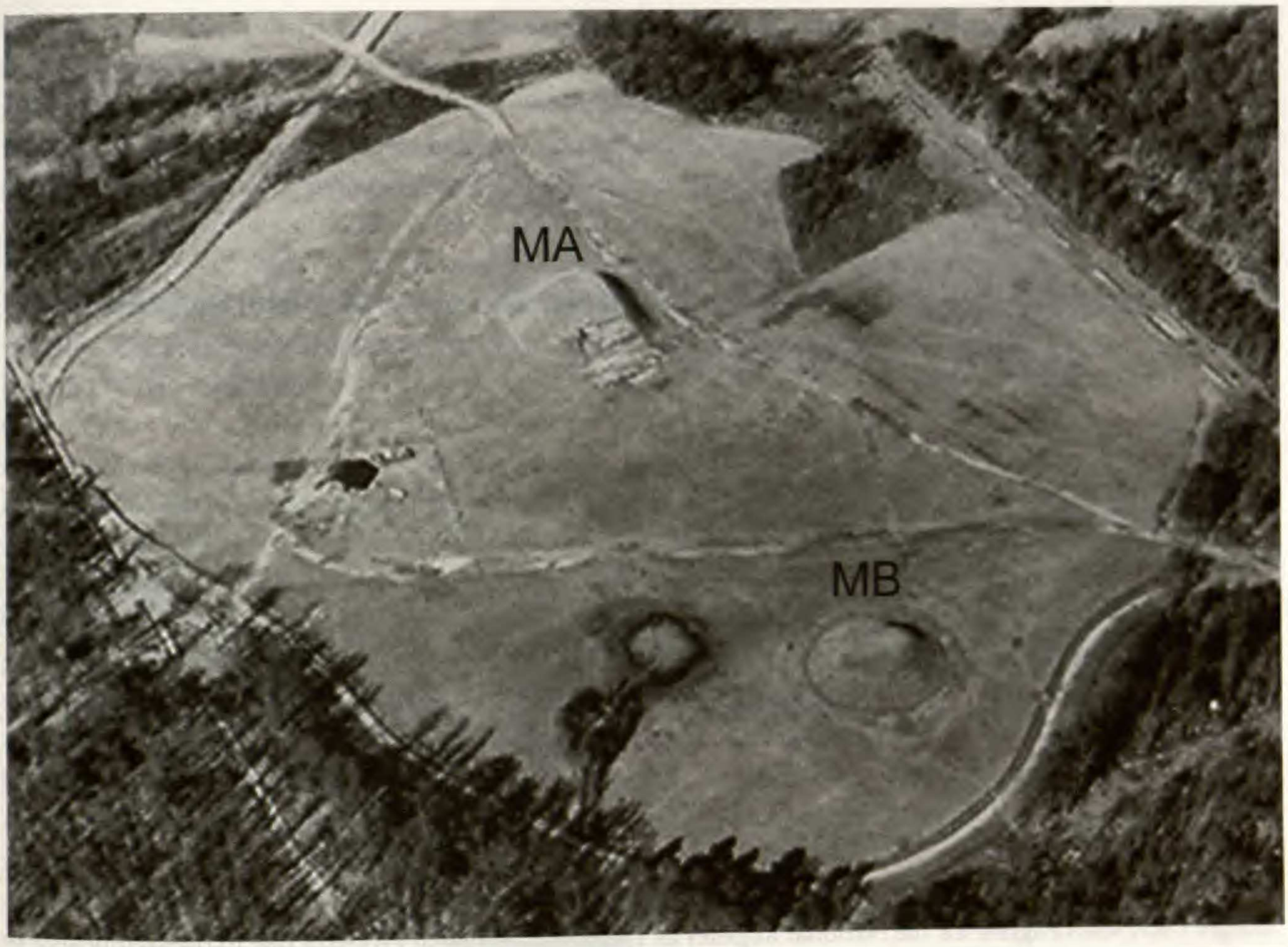


**Fig. 4. Aerial view of excavation at the Lamar Mounds and Village Site, 1934. Today the area is covered by dense floodplain forest with an almost impenetrable understory dominated by *Ligustrum sinense*. Abbreviations: MA = Mound A; MB = Mound B (note spiral ramp). From the Ocmulgee National Monument collection; used with permission and courtesy of the National Park Service (A. Bates, pers. comm.).**

nial complex included several structures that dominate the landscape today, including a circular earth lodge and seven massive flat-topped pyramidal earthworks that served as temple platforms and burial mounds (Figs. 2A and 3).

By 1350 AD, the Ocmulgee Fields declined as a ceremonial center, and a new culture, the Lamar or Late Mississippians, coalesced among people who lived in the swamps ca. 3.2 km (2 mi) downstream. One of their major centers is now protected as the Lamar Mounds and Village site (Figs. 1B, 2B, and 4). Represented by vestiges of a stockade surrounding two temple mounds, this site includes a unique circular mound with a spiral ramp (Figs. 2B and 4). The spread of introduced European disease led to eventual decline in the population, and by 1650 the remnants of the culture had relocated westward to the Chattahoochee River (Williams & Shapiro 1990).

Descendants of these Lamar (designated "Creek" or "Muscogee" by the European settlers) returned to Ocmulgee Fields in 1690 to re-establish the town ("Okmulgee Town") and to trade with the British who had built a trading post and fort near the sacred mounds (Fig. 2A). The Creeks were later (1717) expelled from the area after losing a war with the British over land rights. After the Revolutionary War, the new state of Georgia obtained concessions to Creek tribal lands in 1826, following a series of contentious treaties (see Pope 1956; Wheeler 2007). The acreage was incorporated into the new city of Macon, established in 1828.

For the next century, agriculture and industry accelerated the progressive degradation of the natural and cultural resources of the site (Froeschauer 1989; Wheeler 2007). The main park area was a large plantation by the mid-1850s. Grazing removed understory vegetation in the forested areas of Walnut Creek, and intense ag-

ricultural production around the mounds eroded topsoil that accumulated downriver at the Lamar site. The Central of Georgia Railroad constructed two railway lines though "Ocmulgee Old Fields," clearing vegetation and removing much of Lesser Temple Mound and Funeral Mound in the process. After the Civil War, a brick factory, fertilizer plant, and dairy farm were in operation at the site, and clay was mined from deep pits near Great Temple Mound. By the 1920's, the Ocmulgee mounds had become a popular recreation area for Macon residents, and activities such as motorcycle racing (on the slopes) further eroded the earthworks. A large portion of McDougal Mound was used as fill for constructing Emery Highway.

A group of concerned local citizens and politicians successfully secured New Deal funding for archeological studies, organized by the Smithsonian Institution. The massive excavations, conducted from 1933–1942 by the Civilian Conservation Corps (CCC), stripped most of the vegetation at both sites (e.g., Fig. 4) to reveal prehistoric landscapes and invaluable artifacts. The success of the federally sponsored study in addition to strong local support for historical preservation resulted in the establishment of Ocmulgee National Monument by Presidential Proclamation in 1936 (Marsh 1986; Wheeler 2007). Under the jurisdiction of the National Park Service, CCC workers constructed roads, trails, utilities, parking lots, and the Visitor Center for the new park. Loblolly pine (*Pinus taeda*) and Bermuda grass (*Cynodon dactylon*) were planted to control erosion.

More recently, natural resources have been heavily impacted by encroaching urbanization, particularly the construction of the Macon Levee (in 1950) on the western side of the river and of Interstate 16 (in the 1960s; Fig. 1B), which extensively changed the hydrology at both park units (Burkholder et al. 2010). One significant consequence was a massive flood in 1994 that inundated hardwood forest and created the Walnut Creek wetlands, now a permanently flooded area (Figs. 2A, 3, and 5). Currently, the rest of the main park consists of forested "natural" zones surrounding mowed lawns protecting the mound areas. The Lamar Mounds unit is covered by dense floodplain forest that is managed on a minimal maintenance schedule with trail and mounds occasionally cleared of vegetation. The NPS continues to negotiate for acquisition of up to 14,000 acres of Ocmulgee Old Fields eligible for the National Register as Traditional Cultural Property due to the significance to the Creek people (David 2012).

**Floristic Surveys of OCMU**

A few unvouchered lists of plant species for the Ocmulgee National Monument and surrounding areas had been produced for various park reports (e.g., Froeschauer 1989; Puckett 1997). In 1999, the National Park Service inaugurated a long-term ecological inventory and monitoring program to establish baseline data on park ecosystems for resource management decisions (see Fancy et al. 2009). As part of that initiative in the southeastern United States (DeVivo et al. 2008), a comprehensive and vouchered floristic survey of OCMU was conducted by Gaddy and Nelson (2004). They collected 447 specimens from July 2002 to November 2004 and also obtained 31 vouchers from informal 1986–1987 surveys by John D. Shepherd and his students at Mercer University in Macon, Georgia. The most recent specimen verifications and supplemental collections in 2008–2009 by Zomlefer and associates enhance previous surveys with the goal of generating an accurate vouchered species list as a reference for on-going invasive species control and park-wide vegetation community mapping and research projects (e.g., DeVivo et al. 2011).

## MATERIALS AND METHODS

The first author led 4 field trips for one year (27 May, 25 July, and 1 October 2008; 9 April 2009; *Zomlefer 2091–2136, 2249–2268, 2275–2292, 2359–2403*) to collect plant specimen vouchers using standard field and herbarium techniques (under collecting permit # OCMU-2008-SCI-0005). One follow-up trip was conducted on 7 August 2012 to confirm vegetation community types. The GA Herbarium team also verified determinations of vouchers from previous surveys of the park (*Nelson*, *Gaddy*, and *Shepherd* collections), including 70 unidentified specimens as well as a voucher of *Salpichroa origanifolia* sent to GA for identification in November 2010 by Theresa L. Hall, Interpretive Ranger at Ocmulgee National Monument. The complete set of mounted vouchers for the park (610 specimens) is deposited at GA Herbarium. The floras of Radford et al. (1968) and Weakley (2011) were primary sources for plant identification, supplemented by Cronquist (1980), Godfrey

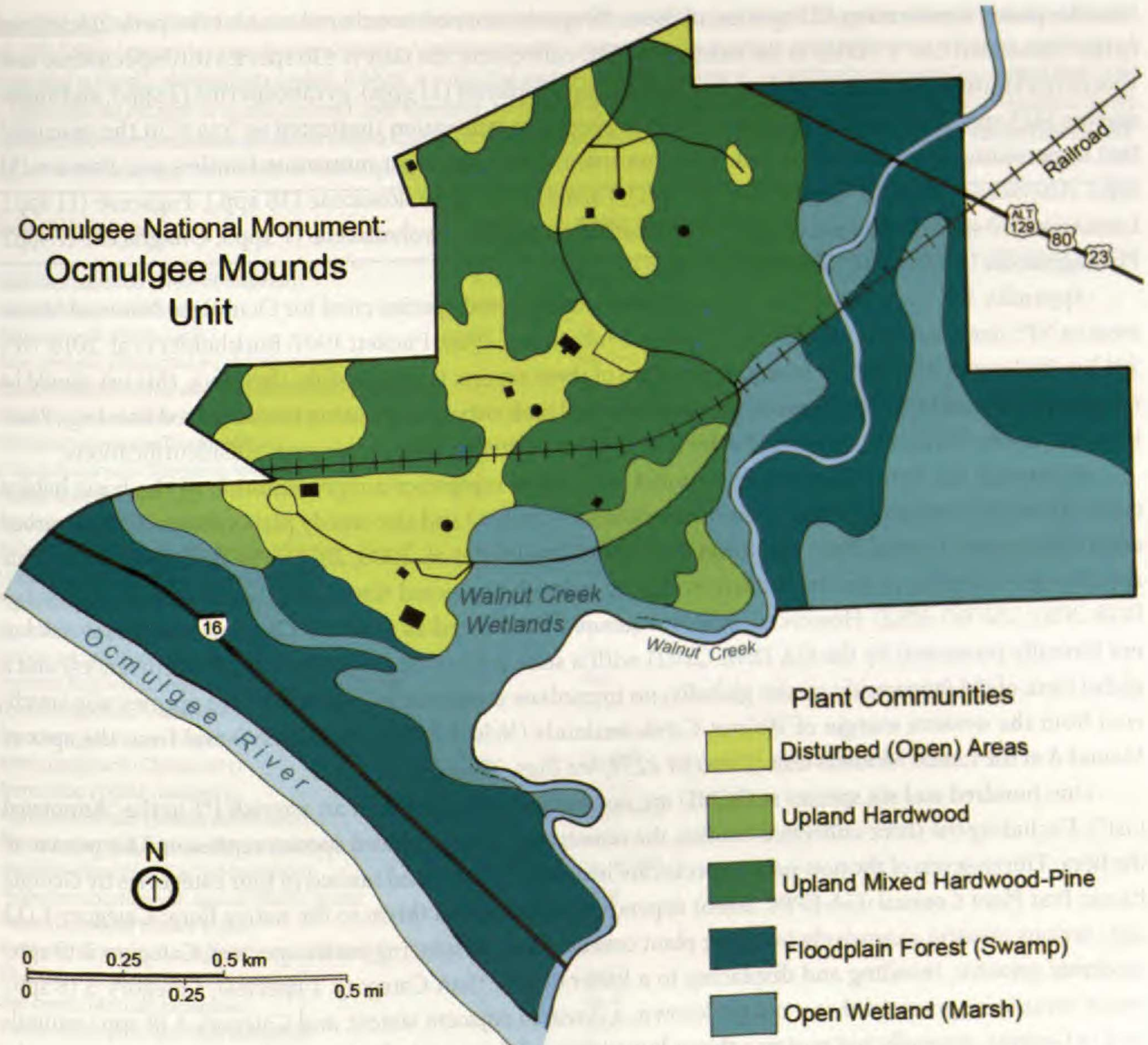


Fig. 5. General vegetation map of the Ocmulgee Mounds unit. Locations of major cultural features and Ocmulgee National Park Road provided for reference (see Fig. 2A). Modified and updated from Froeschauer (1989) by WBZ from field observations (W.B. Zomlefer and B.L. Wichmann, pers. obs.), specimen locality data, Google Earth©, and unpublished aerial imagery maps (CIR 1999 [color infrared] and NAIP 2010 [National Agriculture Imagery Program]) provided by the NPS (G. LaChine, pers. comm.).

(1988), Godfrey and Wooten (1979, 1981), Isely (1990), Wunderlin and Hansen (2000, 2011), and appropriate volumes of the *Flora of North America* (FNA 1993+). Infraspecific status was designated when practical keys (utilizing discrete characters appropriate for our specimens) were available. The list of unvouchered plant sight records (Appendix 1) was compiled from unpublished reports and an NPS species database (NPS 2012c) with the nomenclature and taxonomy updated using the *Integrated Taxonomic Information System* online database (ITIS 2012) and Weakley (2011). The format of this report incorporates standards recommended for floristic studies by Palmer and Richardson (2012).

## RESULTS

### Floristics

The "Annotated Checklist of Vascular Plant Taxa" is the complete flora for Ocmulgee National Monument represented by vouchers in GA Herbarium. The current survey comprised 131 new numbered collections of

vascular plants representing 123 species; of these, 58 species are new vouchered taxa for the park (underlined in the "Annotated List"). Added to the existing OCMU collections, the tally is 436 species (610 specimens) now vouchered for this flora in three major plant groups: monilophytes (11 spp.), gymnosperms (2 spp.), and angiosperms (423 spp.). Included in this total are three species in cultivation (indicated as "CULT" in the annotated list) or persisting from cultivation but likely not naturalized. The most numerous families are: Poaceae (53 spp.), Asteraceae (36 spp.), Cyperaceae (33 spp.), Fabaceae (21 spp.), Rosaceae (18 spp.), Fagaceae (11 spp.), Lamiaceae (10 spp.), Rubiaceae (9 spp.), Polygonaceae (8 spp.), Convolvulaceae (7 spp.), Onagraceae (7 spp.), Plantaginaceae (7 spp.), and Sapindaceae (7 spp.).

Appendix 1 is a compilation of 189 additional unvouchered species cited for Ocmulgee National Monument in NPS databases and unpublished reports (Froeschauer 1989; Puckett 1997; Burkholder et al. 2010; NPS 2012c). Without preserved specimens, verification of these reports is not possible; therefore, this list should be referenced with caution. Based on our previous national park survey work using unvouchered lists (e.g., Zomlefer et al. 2008, 2012), we predict that at least 20 percent of this list likely represents misidentifications.

In general, the flora of Ocmulgee National Monument comprises a representation of the basic habitat types of central Georgia (see "Plant Communities" section below) and also weedy plants common in disturbed areas of the upper Coastal Plain and lower Piedmont (Zomlefer et al. 2008, 2012). The flora does not include any Georgia endemics or species ranked as state or federally protected (threatened, endangered, or rare; GA DNR 2010; USFWS 2012). However, *Cayaponia quinqueloba* is listed as a Special Concern species (at risk but not formally protected) by the GA DNR (2011) with a state rank of S2 (imperiled; 6–20 occurrences) and a global rank of G4 (apparently secure globally; no immediate conservation concern). This species was vouchered from the western margin of Walnut Creek wetlands (*Nelson 23064*; see Fig. 2A) and from the apex of Mound A at the Lamar Mounds unit (*Zomlefer 2259*; see Figs. 2B and 4).

One-hundred and six species at OCMU are non-native (indicated with an asterisk [*] in the "Annotated List"). Excluding the three cultivated exotics, the remaining 103 introduced species represent 23.6 percent of the flora. Thirty-seven of the non-native species are invasive (Table 1) and ranked in four categories by Georgia Exotic Pest Plant Council (GA-EPPC 2006) depending on perceived threat to the native flora: Category 1 (13 spp.; serious invasive extensively invading plant communities, displacing native species); Category 2 (9 spp.; moderate invasive, invading and displacing to a lesser degree than Category 1 species); Category 3 (8 spp.; minor invasive or potential threat not yet known, a threat in adjacent states); and Category 4 (8 spp.; naturalized in Georgia, generally not posing a threat but additional data needed). Most of these species were vouchered from disturbed areas of the park (indicated as "DA" in Table 1).

Currently, about 40 ha (100 acres) of OCMU have been successfully surveyed, treated, and managed for invasive plant species (G. LaChine, pers. comm.). For the past ten years, park personnel have been targeting the most prevalent and critical of these exotics (all ranked as Category 1): *Ailanthus altissima*, *Ligustrum sinense*, *Melia azedarach*, and *Pueraria montana*. A serious invasive of immediate concern and removal efforts, *Triadica sebifera*, has become widespread in the Walnut Creek wetlands area of the main park unit and is also present at the Lamar Mounds unit. Other exotics, such as *Lonicera japonica* and *Hedera helix*, have been eradicated whenever possible, especially from sensitive areas with cultural resources (NPS 2012d). In some areas, aquatic invasives *Alternanthera philoxeroides* (Category 1), *Murdannia keisak* (1), and *Myriophyllum aquaticum* (2) are becoming a management challenge (Burkholder et al. 2010). Control measures have not been instigated for the 20 non-native grass species (Wheeler 2007; G. LaChine, pers. comm.); eight of these are ranked as Category 2 or 3 (Table 1). In the main park unit, these exotics primarily occur intermixed with native grasses and planted *Cynodon dactylon* comprising the mowed lawns covering the mound areas.

**Plant Communities**

Ocmulgee National Monument has a long history of disturbance that has drastically altered the vegetation, especially over the last two centuries (see "Brief History of OCMU with Emphasis on Land Use"). The Ocmulgee Mounds unit now comprises grassy fields (around the mounds) surrounded by upland woods and forested or open wetland habitats (Fig. 5). The Lamar Mounds unit is swamp with some open disturbed areas bordering

TABLE 1. List of 37 non-cultivated exotic invasive (or potentially invasive) species vouchered for Ocmulgee National Monument, with rankings as assessed by the GA–EPPC (2006): Category 1 (serious invasive), Category 2 (moderate invasive), Category 3 (minor invasive or potential threat not yet known), and Category 4 (naturalized in Georgia, additional data needed). Habitats: DA = disturbed areas; FP = floodplain swamp; PM = pond/marsh (open water); UF = upland forest; hab? = habitat data not recorded on voucher specimen label. Abundance: c = common (generally abundant throughout a particular habitat); o =occasional (locally common and/or several individuals distributed within a habitat); i = infrequent (sporadic occurrence of a small number of individuals); r = rare (very few individuals); ab? = abundance data not recorded on voucher specimen label.

| Species (Common Name) | Rank | Habitat; Abundance |
|---|---|---|
| *Ailanthus altissima* (Tree-of-heaven) | 1 | DA; o |
| *Albizia julibrissin* (Silktree) | 1 | DA, UF; ab? |
| *Allium vineale* (Field garlic) | 4 | DA, i |
| *Alternanthera philoxeroides* (Alligator-weed) | 1 | PM; o–c |
| *Cynodon dactylon* var. *dactylon* (Bermuda grass) | 2 | DA, c |
| *Dioscorea polystachya* (Cinnamon vine) | 2 | PM; ab? |
| *Elaeagnus pungens* (Thorny-olive) | 2 | UF; ab? |
| *Eragrostis curvula* (Weeping lovegrass) | 3 | DA; c |
| *Hedera helix* (English ivy) | 1 | UF; c |
| *Ilex cornuta* (Chinese holly) | 4 | DA; ab? |
| *Jacquemontia tamnifolia* (Jacquemontia) | 4 | DA; ab? |
| *Lespedeza cuneata* (Sericea lespedeza) | 1 | DA; c |
| *Ligustrum japonicum* (Japanese privet) | 2 | DA; o |
| *Ligustrum sinense* (Chinese privet) | 1 | FP, UF; c |
| *Liriope spicata* (Creeping lilyturf) | 4 | UF; i |
| *Lonicera fragrantissima* (Sweet breath-of-spring) | 3 | DA; i |
| *Lonicera japonica* (Japanese honeysuckle) | 1 | UF; o |
| *Lygodium japonicum* (Japanese climbing fern) | 1 | DA, PM; i–c |
| *Melia azedarach* (Chinaberry) | 1 | DA; ab? |
| *Morus alba* (White mulberry) | 3 | DA; r–c |
| *Murdannia keisak* (Marsh dewflower) | 1 | DA, FP, PM; c |
| *Myriophyllum aquaticum* (Parrot-feather) | 2 | PM; i–c |
| *Nandina domestica* (Sacred-bamboo) | 2 | DA, UF; ab? |
| *Paspalum notatum* var. *saurae* (Bahia grass) | 2 | DA; o |
| *Paspalum urvillei* (Vasey grass) | 3 | DA; o |
| *Persicaria longiseta* (Longbristle smartweed) | 4 | DA; c |
| *Phyllostachys aurea* (Golden bamboo) | 2 | DA; c |
| *Poa annua* (Annual bluegrass) | 3 | DA; o |
| *Pueraria montana* var. *lobata* (Kudzu) | 1 | DA; c |
| *Schedonorus arundinaceus* (Tall fescue) | 3 | DA; i–c |
| *Sesbania punicea* (Rattlebox) | 2 | PM; o |
| *Sonchus oleraceus* (Common sow-thistle) | 4 | DA; r |
| *Sorghum halepense* (Johnson grass) | 3 | DA; o |
| *Stachys floridana* (Florida betony) | 3 | DA; c |
| *Triadica sebifera* (Chinese tallow-tree) | 1 | FP, PM; i–c |
| *Verbascum thapsus* (Common mullein) | 4 | DA; r |
| *Verbena bonariensis* (Purpletop vervain) | 4 | DA; ab? |
| *Wisteria sinensis* (Chinese wisteria) | 1 | DA; ab? |

the overgrown logging road and cleared mound areas (Fig. 2B). Below is a summary of the flora of these general community types based on Wharton (1978), Froeschauer (1989), specimen data, and field observations (W.B. Zomlefer & B.L. Wichmann, pers. obs.): upland forest (mixed hardwood and mixed hardwood–pine), swamp forest, open wetland, and disturbed areas. These categories, which may intergrade, are provided as a guide for placing plant species within the context of a habitat.

**Upland Forests.**—The forested uplands at the Ocmulgee Mounds unit (Fig. 5) have been modified by disturbance into secondary growth hardwood and mixed hardwood–pine (Wharton 1978; Burkholder et al. 2010). The dominants are oaks (e.g., *Quercus falcata*, *Q. nigra*, *Q. phellos*), hickories (e.g., *Carya glabra*, *C. ovata*), and loblolly pine (*Pinus taeda*); a few areas along the southeastern section of Ocmulgee National Monument Road are dominated by pine. Other codominant trees include *Acer* spp. (e.g., *A. floridanum*, *A. rubrum*), *Fagus*

*grandifolia*, *Liquidambar styraciflua*, *Liriodendron tulipifera*, *Magnolia grandiflora*, and *Ulmus americana*. The composition of the understory shrubs and shrubby trees vary according to the overstory and location in the park and commonly include *Aesculus pavia*, *Asimina parviflora*, *Calycanthus floridus*, *Carpinus caroliniana*, *Celtis laevigata*, *Cercis canadensis*, *Cornus florida*, *Crataegus* spp. (e.g., *C. spathulata*), *Diospyros virginiana*, *Ilex* spp. (e.g., *I. decidua*), *Ligustrum sinense*, *Prunus serotina*, and *Vaccinium arboreum*. *Gelsemium sempervirens*, *Hedera helix*, *Lonicera japonica*, *Smilax* spp. (e.g., *S. bona-nox*), *Toxicodendron radicans*, and *Vitis* spp. (e.g., *V. rotundifolia*) comprise some frequent vine species intertwined amongst the shrubs and over the ground cover.

Understory vegetation is much more diverse in the mixed hardwood forests than in those areas where pine predominates. The early spring flora species, inhabiting the forest floor before the hardwood canopy fully closes, include: *Erythronium umbilicatum*, *Hexastylis arifolia*, *Luzula echinata*, *Melica mutica*, *Myosotis macrosperma*, *Podophyllum peltatum*, *Polygonatum biflorum*, and *Viola sororia*. Woodland species such as *Asplenium platyneuron*, *Conoclinium coelestinum*, *Dichanthelium commutatum*, *Elephantopus carolinianus*, *Oplismenus hirtellus*, *Symphyotrichum* spp. (e.g., *S. pilosum*), and *Tipularia discolor* appear later in the season, especially under canopy openings such as trail sides.

**Floodplain Forest.**—Swamp or bottomland hardwood (floodplain, alluvial, or palustrine forest) consists of seasonally inundated, mesic lowland that generally remains moist throughout the year (Wharton 1978). At the Ocmulgee Mounds unit, this community type is associated with the Ocmulgee River and Walnut Creek in the southwestern and eastern sections of the park, mainly bordering open marshland (Figs. 2A and 5). The low-lying Lamar Mounds unit is almost entirely covered by dense floodplain forest (Williams 1999) since the partial levee (Fig. 2B) provides little protection from periodic flooding by the nearby Ocmulgee River (Fig. 1B).

Within the swamp forest, tall trees create a closed-canopy over an often impenetrable thicket of shrubby understory. Dominant trees usually include *Acer* spp. (e.g., *A. negundo*, *A. rubrum*), *Betula nigra*, *Fraxinus pennsylvanica*, *Liquidambar styraciflua*, *Liriodendron tulipifera*, *Nyssa biflora*, *Platanus occidentalis*, *Quercus* spp. (e.g., *Q. nigra*), and *Ulmus americana*. Swamp communities at OCMU can also be characterized by the following co-dominants and/or understory woody species: *Alnus serrulata*, *Asimina parviflora*, *Bignonia capreolata*, *Carpinus caroliniana*, *Crataegus viridis*, *Itea virginica*, *Ilex* spp. (e.g., *I. vomitoria*), *Ligustrum sinense*, *Lonicera japonica*, *Ostrya virginiana*, *Pinus taeda*, *Salix caroliniana*, *Smilax* spp. (e.g., *S. laurifolia*), *Triadica sebifera*, *Toxicodendron radicans*, and *Vitis* spp. (e.g., *V. rotundifolia*). A relatively sparse understory of ferns, such as *Onoclea sensiblis* and *Woodwardia areolata*, and angiosperm species, such as *Arundinaria gigantea*, *Arisaema triphyllum*, *Commelina virginica*, *Juncus coriaceus*, *Justicia ovata*, *Leersia lenticularis*, *Lobelia cardinalis*, *Lycopus rubellus*, and *Pilea pumila*, may occur under openings in the bottomland canopy.

**Open Wetlands.**—Open wetland (or marsh) is a broad designation, here applied to aquatic areas at the Ocmulgee Mounds unit where the canopy is lacking or sparse and standing water is often present for at least part of the year. This habitat type is mainly associated with floodplain areas of the Ocmulgee River and its tributary, Walnut Creek (Fig. 5). The large marsh, Walnut Creek wetlands (Figs. 2A, 3, and 5), developed from hydrological changes caused by the construction of I-16 (Wheeler 2007; Burkholder et al. 2010). Prior to 1994, this open wetland was forested and seasonally flooded but the area now contains standing water all year.

In the marshy areas of this park unit, sedges and grasses predominate, including *Carex* spp. (e.g., *C. louisianica*, *C. lupulina*), *Cyperus* spp. (e.g., *C. erythrorhizos*, *C. retrorsus*), *Leersia virginica*, *Panicum anceps*, *P. rigidulum*, *Phanopyrum gymnocarpon*, *Rhynchospora globularis*, and *Scirpus cyperinus*. Floating aquatics include *Alternanthera philoxeroides*, *Myriophyllum aquaticum*, and *Najas minor*. Other common herbaceous species are *Erechtites hieraciifolius*, *Galium triflorum*, *Hydrocotyle verticillata*, *Iris hexagona*, *Juncus dichotomus*, *Ludwigia* spp. (e.g., *L. decurrens*), *Mikania scandens*, *Mimulus alatus*, *Murdannia keisak*, *Packera glabella*, *Persicaria* spp. (e.g., *P. hydropiperoides*), *Sagittaria latifolia*, *Saururus cernuus*, and *Typha latifolia*. *Berchemia scandens*, *Brunnichia ovata*, *Cephalanthus occidentalis*, *Cornus stricta*, *Forestiera acuminata*, *Hibiscus laevis*, *Rubus pensilvanicus*, *Sabal minor*, *Sambucus canadensis*, *Smilax* spp. (e.g., *S. glauca*), and *Vitis* spp. (e.g., *V. aestivalis*) are examples of common woody vines and scattered shrubs that occur along the margins of these open wetlands. The bordering areas may also comprise some tree species (such as *Acer floridanum*) and seedlings of *Triadica sebifera*.

**Disturbed or Ruderal Areas.**—This general category refers to cleared sections around public access areas (parking lots, roadsides, trails, railroad right-of-way) and mowed fields surrounding earthworks and other historic sites at the Ocmulgee Mounds unit (see Fig. 5). Disturbed areas in the Lamar Mounds swamp are restricted to the most exposed sites (cleared mounds and trail margins) and are characterized by species preferring damp habitat such as *Eupatorium serotinum*, *Hypericum mutilum*, *Perilla frutescens*, *Persicaria longiseta*, and *Smilax* spp. (e.g., *S. rotundifolia*).

In the main park, ruderal areas are characterized by a much more variable and diverse flora that includes many non-native and invasive species and a predominance of graminoids, including: *Andropogon* spp. (e.g., *A. glomeratus*), *Bromus racemosus*, *Cynodon dactylon*, *Dactylis glomerata*, *Danthonia spicata*, *Dichanthelium* spp. (e.g., *D. dichotomum*), *Echinochloa crusgalli*, *Eragrostis* spp. (e.g., *E. curvula*), *Festuca subverticillata*, *Lolium perenne*, *Panicum* spp. (e.g., *P. virgatum*), *Paspalum* spp. (e.g., *P. dilatatum*), *Setaria parviflora*, *Sorghastrum nutans*, *Sorghum halepense*, and *Vulpia myuros*. Asteraceae also comprise a large component, with common species such as *Ambrosia artemisiifolia*, *Erigeron strigosus*, *Eupatorium hyssopifolium*, *Gamochaeta* spp. (e.g., *G. pensylvanica*), *Helenium amarum*, *Hypochaeris radicata*, *Krigia virginica*, *Pityopsis graminifolia*, *Solidago altissima*, *Sonchus oleraceus*, and *Youngia japonica*. *Allium canadense*, *Chaerophyllum tainturieri*, *Glandularia pulchella*, *Houstonia pusilla*, *Ipomoea* spp. (e.g., *I. cordatotriloba*), *Lamium amplexicaule*, *Lespedeza cuneata*, *Plantago* spp. (e.g., *P. lanceolata*), *Polypremum procumbens*, *Stellaria media*, *Trifolium arvense*, *Vicia* spp. (e.g., *V. sativa*), and *Viola arvensis* are examples of other widespread ruderal herbs. The borders of these areas often include woody species such as *Morus rubra*, *Prunus serotina*, *Rubus trivialis*, *Toxicodendron radicans*, and *Vitis* spp. (e.g., *V. rotundifolia*).

## DISCUSSION

### OCMU Management Issues and Importance of Vouchers

Ocmulgee National Monument is a historically significant park that also supports diverse wildlife as part of a greenway corridor to other natural areas to the south (DeVivo et al. 2008). The biological and cultural resources of the park have been heavily impacted by surrounding urbanization and associated degradation of the Ocmulgee River watershed. Threats affecting the flora and fauna include air and water pollution, erosion, sedimentation, and invasive exotic species (Burkholder et al. 2010). The herbarium collection for OCMU serves as a baseline for monitoring these habitats, thus providing a valuable reference for natural resource management. Encroaching development threatens the native component of the OCMU flora while contributing to an increase in non-native and weedy species that require documentation. Continued inventory efforts should also concentrate on locating significant species—both native and exotic—previously reported in the park but not yet verified by voucher specimens (see Appendix 1).

## ANNOTATED CHECKLIST OF VASCULAR PLANT TAXA

This list of 436 vascular plant species, representing 112 families, represents collections from Ocmulgee National Monument now deposited at the GA herbarium. Genera, species, and infraspecific taxa are alphabetical within each family under three major groups (monilophytes ["ferns and allies"], gymnosperms, and angiosperms). Family circumscriptions follow the following sources: Smith et al. (2006) for monilophytes; FNA (1993) for gymnosperms; and APG III (2009) for angiosperms. Scientific nomenclature follows ITIS (2012) and Weakley (2011). Common names are from Weakley (2011) when available, or from Wunderlin and Hansen (2011). The few synonyms included in brackets are alternate names used in NPS reports and databases.

Specimen notations: *G* = Gaddy (all s.n.) [GA accession number], *H* = Julie Howard (one specimen, *Salpichroa origanifolia*), *N* = Nelson, *S* = John D. Shepherd, *Z* = Zomlefer; underlined taxa = new vouchered taxa for the park by *Zomlefer*; * = exotic (ITIS 2012; Weakley 2011); invasive exotics (GA–EPPC 2006): [CAT 1] = Category 1, [CAT 2] = Category 2, [CAT 3] = Category 3, [CAT 4] = Category 4; rare plants: [Con] = species of special concern in Georgia (GA–DNR 2011); CULT = cultivated (i.e., planted on park grounds); (s) = sterile (non-reproductive) specimen. Locality/habitat data: LM = Lamar Mounds, DA = disturbed areas, FP = floodplain swamp, PM

= pond/marsh (open water), UF = upland forest, hab? = habitat data not recorded on specimen voucher label. Relative abundance: c = common (generally abundant throughout a particular habitat; species easily found), o = occasional (locally common and/or several individuals distributed within a habitat; species not too difficult to locate), i = infrequent (sporadic occurrence of a small number of individuals; species relatively scarce and not easily found), r = rare (very few individuals encountered), ab? = abundance data not recorded on voucher specimen label.

## MONILOPHYTES ("FERNS AND ALLIES")

### Aspleniaceae

*Asplenium platyneuron* (L.) Britton, Sterns & Poggenb., Ebony spleenwort; DA, UF; i-o; G s.n. [262100]; *N 23025; Z 2093*

### Athyriaceae

*Athyrium asplenioides* (Michx.) A.A. Eaton [*A. filix-femina* (L.) Roth ssp. *asplenioides* (Michx.) Hultén], Southern lady fern; DA, PM, UF; i; *N 24364; S 4095*

### Blechnaceae

*Woodwardia areolata* (L.) Moore, Netted chain fern; FP, PM, UF; o; *G s.n.* [262243] (s); *N 23021*

### Dennstaedtiaceae

*Pteridium aquilinum* L., Bracken; UF; o; *N 23055*

### Dryopteridaceae

*Polystichum acrostichoides* (Michx.) Schott, Christmas fern; LM: hab?, ab?; *S 4140* (s)

### Lygodiaceae

**Lygodium japonicum* (Thunb.) Swartz, Japanese climbing fern; [Cat 1]; DA, PM; i-c; *G s.n.* [262175]; *N 24415; Z 2100*

### Onocleaceae

*Onoclea sensibilis* L. var. *sensibilis*, Sensitive fern; PM; i; *G s.n.* [262188]

### Osmundaceae

*Osmunda spectabilis* Willd. [*O. regalis* (Willd.) A. Gray var. *spectabilis* (Willd.) A. Gray], American royal fern; UF; i; *G s.n.* [262190] (s)

*Osmundastrum cinnamomeum* (L.) C. Presl, Cinnamon fern; DA; i; *N 23033*

### Polypodiaceae

*Pleopeltis polypodioides* (L.) E.G. Andrews & Windham var. *michauxiana* (Weath.) E.G. Andrews & Windham [*Polypodium polypodioides* (L.) Watt], Resurrection fern; UF; c; *N 23052*

### Thelypteridaceae

**Macrothelypteris torresiana* (Gaudich.) Ching, Mariana maiden fern; UF; i; LM: DA, FP; o; *N 23026; Z 2257*

## GYMNOSPERMS

### Cupressaceae

*Juniperus virginiana* L., Southern red cedar; UF; i; *G s.n.* [262160]

### Pinaceae

*Pinus taeda* L., Loblolly pine; DA, UF; i; *G s.n.* [262196]; *N 23059* (s)

## ANGIOSPERMS

### Acanthaceae

*Dicliptera brachiata* (Pursh) Spreng., Branched foldwing; UF; LM: DA, FP; o; *G s.n.* [262136]; *Z 2387*

*Justicia ovata* (Walter) Landau var. *ovata*, Coastal plain water-willow; LM: DA, FP; i; *Z 2252*

*Ruellia caroliniensis* (J.F. Gmel.) Steudel, Wild petunia; DA; o; *N 23044*

### Adoxaceae

*Sambucus canadensis* L., Common elderberry; FP, PM; c; *N 22976*

*Viburnum nudum* L. var. *nudum*, Southern wild raisin; FP; ab?; *G s.n.* [262236] (s)

### Alismataceae

*Sagittaria latifolia* Willd., Broadleaf arrowhead; PM; i; *Z 2370*

### Altingiaceae

*Liquidambar styraciflua* L., Sweet gum; UF; o; *G s.n.* [262166]

### Amaranthaceae

**Alternanthera philoxeroides* (Mart.) Griseb., Alligator-weed; [Cat 1]; PM; o-c; *N 23065; Z 2117*

**Amaranthus viridis* L., Slender amaranth; DA; ab?; *G s.n.* [262097]

*Chenopodium album* L.; Lamb's-quarters; DA; r; *Z 2376*

**Dysphania ambrosioides* (L.) Mosyakin & Clemants [*Chenopodium ambrosioides* L.], Mexican-tea; DA; i; *N 24399*

**Gomphrena serrata* L., Arrasa con todo; DA; ab?; *N 22990*

### Amaryllidaceae

*Allium canadense* L. var. *canadense*, Wild onion; DA; c; *Z 2131*

**Allium vineale* L., Field garlic; [Cat 4]; DA; i; *Z 2095*

*Nothoscordum bivalve* (L.) Britton, False garlic; DA; ab?; *N 23621*

*Zephyranthes atamasca* (L.) Herbert, Common atamasco-lily; PM, UF; i; *N 23703; Z 2403*

### Anacardiaceae

*Rhus copallinum* L., Winged sumac; hab?; ab?; *G s.n.* [262212] (s)

*Toxicodendron radicans* (L.) Kuntze ssp. *radicans*, Eastern poison ivy; DA; ab?; *N 22932*

### Annonaceae

*Asimina parviflora* Dunal, Small-flowered pawpaw; FP, UF; r-o; *N 23032* (s), *23054, 23684*

*Asimina triloba* (L.) Dunal, Common pawpaw; UF; i; *N 23063* (s)

### Apiaceae

**Anthriscus caucalis* Bieb., Bur chervil; DA; i; *N 23675*

*Chaerophyllum tainturieri* Hook., Southern chervil; DA; o; *N 23660*

*Sanicula canadensis* L., Canadian black snakeroot; DA; i; *Z 2127*

### Apocynaceae

*Gonolobus suberosus* (L.) R. Br. [*Matelea gonocarpos* (Walter) Shinners], Anglepod; DA, PM, UF; c-o; *N 22969; 23070; Z 2129*

*Trachelospermum difforme* (Walter) A. Gray, Climbing dogbane; FP; ab?; *N 22960*

### Aquifoliaceae

*Ilex ambigua* (Michx.) Torr., Carolina holly; UF; ab? *N 23699, 24362*

**Ilex cornuta* Lindl. & Paxton, Chinese holly; [Cat 4]; DA; ab?; *N 24409*

*Ilex decidua* Walter, Possum-haw; DA, UF; o-c; *N 22927* (s), *22934, 23682*

*Ilex opaca* Aiton var. *opaca*, American holly; UF; i; *G s.n.* [262155]

*Ilex vomitoria* Aiton, Yaupon; DA, UF; ab?; *N 23004, 23655*

### Araceae

*Arisaema dracontium* (L.) Schott, Green dragon; PM; ab?; *G s.n.* [262099] (s)

*Arisaema triphyllum* (L.) Schott, Jack-in-the-pulpit; LM: FP; ab?; *S 4147*

### Araliaceae

*Aralia spinosa* L., Devil's-walking-stick; DA; ab?; *N 22994*

**Hedera helix* L., English ivy; [Cat 1]; UF; c; *N 23048* (s)

*Hydrocotyle verticillata* Thunb., Whorled marsh pennywort; PM; i; *G s.n.* [262153] (s)

**Arecaceae**

*Sabal minor* (Jacq.) Pers., Dwarf palmetto; PM; i; *N 22970; Z 2122*

**Aristolochiaceae**

*Hexastylis arifolia* (Michx.) Small [*Asarum arifolium* Michx.], Little brown jug; UF; i; *N 23686*

**Asparagaceae**

**Asparagus officinalis* L., Asparagus; DA; i; *N 22987, 24389; Z 2096* (s)

**Liriope spicata* Lour., Creeping lilyturf; [CAT 4]; UF; i; *Z 2290*

*Polygonatum biflorum* L. var. *biflorum*, Small Solomon's-seal; UF; i; *G s.n.* [262203]; *N 23701*

*Yucca filamentosa* L., Curlyleaf yucca; DA, UF; i; *G s.n.* [262245] (s); *N 23053* (s), *23694* (s)

*Yucca gloriosa* L., Mound-lily yucca; DA; ab?; *G s.n.* [262246] (s), [262247]

**Asteraceae**

*Acmella repens* (Walter) Rich. ex Pers., Creeping spotflower; LM: DA, FP; r; *Z 2256*

*Ambrosia artemisiifolia* L., Ragweed; DA; c; *G s.n.* [262098]; *N 24388*

*Bidens bipinnata* L., Spanish needles; hab?; ab?; *G s.n.* [262103]

*Bidens discoidea* (Torr. & A. Gray) Britton, Few-bracted beggar-ticks; FP; ab?; *G s.n.* [262104]

*Bidens frondosa* L., Devil's beggar-ticks; PM; i; *N 24412*

*Brickellia eupatorioides* (L.) Shinners [*Kuhnia eupatorioides* L.], False boneset; UF?; ab?; *S 4069*

*Cirsium horridulum* Michx. var. *horridulum*, Purple thistle; DA; ab?; *N 23716*

*Conoclinium coelestinum* (L.) DC., Mistflower; UF; ab?; *G s.n.* [262125]

*Conyza canadensis* (L.) Cronquist var. *canadensis*, Common horseweed; DA; i; *Z 2277*

*Elephantopus carolinianus* Raeusch., Leafy elephant's-foot; DA, UF; o; *G s.n.* [262142]; *Z 2286*

*Erechtites hieraciifolius* (L.) Raf., Fireweed; PM; c; *Z 2380*

*Erigeron philadelphicus* L. var. *philadelphicus*, Philadelphia-daisy; DA; i; *G s.n.* [262146]; *N 23709*

*Erigeron strigosus* Muhl. ex Willd. var. *strigosus*, Common rough fleabane; DA; o-c; *N 24402; Z 2110*

*Eupatorium hyssopifolium* L., Hyssopleaf eupatorium; DA; c; *Z 2291, 2365*

*Eupatorium serotinum* Michx., Late eupatorium; LM: DA; c; *Z 2385*

**Facelis retusa* (Lam.) Schultz-Bip., Trampweed; DA; i; *N 23642*

**Gamochaeta coarctata* (Willd.) Kerguélen, American everlasting; DA; i; *Z 2402*

*Gamochaeta pensylvanica* (Willd.) Cabrera, Pennsylvania everlasting; DA; o; *N 23639*

*Gamochaeta purpurea* (L.) Cabrera, Spoonleaf purple everlasting; DA; i; *G s.n.* [262148]; *Z 2393*

**Helenium amarum* (Raf.) H. Rock, Bitterweed; DA; o; *N 24403*

**Heterotheca latifolia* Buckley var. *latifolia*, Common camphorweed; DA; i; *N 24385*

**Hypochaeris radicata* L., Spotted cat's-ear; DA; ab?; *N 22998*

*Iva annua* L., Sumpweed; DA; c; *Z 2384*

*Krigia virginica* (L.) Willd., Virginia dwarf-dandelion; DA; o; *N 23650; Z 2392*

*Lactuca floridana* (L.) Gaertn., Woodland lettuce; DA, PM; i; *Z 2279*

*Mikania scandens* (L.) Willd., Climbing hempweed; FP, PM; c; *N 22968*

*Packera glabella* (Poir.) C. Jeffrey, Butterweed; FP, PM; o; *N 23707; S 3052*

*Pityopsis graminifolia* (Michx.) Small var. *graminifolia*, Narrowleaf silkgrass; DA; ab?; *G s.n.* [262199]

*Solidago altissima* L. var. *altissima*, Tall goldenrod; DA; i-c; *N 24380, 24387*

**Sonchus oleraceus* L., Common sow-thistle; [CAT 4]; DA; r; *Z 2101*

*Symphyotrichum lanceolatum* (Willd.) G.L. Nesom, White panicle aster; FP; i; *N 24372*

*Symphyotrichum pilosum* (Willd.) G.L. Nesom, White oldfield aster; UF; ab?; *S 4073*

*Verbesina occidentalis* Vellozo, Southern crownbeard; FP; ab?; *G s.n.* [262235]

*Vernonia gigantea* (Walter) Trel., Giant ironweed; FP, PM; i; *G s.n.* [262234]; *N 22979, 24377*

*Xanthium strumarium* L., Cocklebur; DA, FP; c; *N 24390*

**Youngia japonica* (L.) DC., Asiatic hawk's-beard; DA; ab?; *G s.n.* [262244]; *N 23672*

**Berberidaceae**

**Nandina domestica* Thunb., Sacred-bamboo; [CAT 2]; DA, UF; ab?; *G s.n.* [262183] (s)

*Podophyllum peltatum* Michx., May-apple; UF; o; *G s.n.* [262202]; *Z 2395*

**Betulaceae**

*Betula nigra* L., River birch; FP; o; *G s.n.* [262102] (s)

*Carpinus caroliniana* Walter, American hornbeam; UF; o; *N 23696*

*Ostrya virginiana* (Mill.) K. Koch, American hop-hornbeam; FP, UF; i-o; *G s.n.* [262191] (s), [262192] (s)

**Bignoniaceae**

Bignonia capreolata L., Cross-vine; DA; c; N 23712; Z 2394

Campsis radicans (L.) Seemans, Trumpet-creeper; PM; ab?; N 22975

**Boraginaceae**

**Heliotropium amplexicaule* Vahl, Wild heliotrope; DA; o; *Z 2275*

**Heliotropium indicum* L., Turnsole; FP; r; *N 24371*

*Myosotis macrosperma* Engelm., Bigseed forget-me-not; DA, UF; o; *N 23666, 23702; Z 2401*

*Nemophila aphylla* (Nutt.) R. & M., Smallflower baby blue eyes; DA; o-c; *N 23632; Z 2391*

*Phacelia dubia* (L.) Trel., Smallflower phacelia; DA; r-c; *G s.n.* [262195]; *N 23623, 23654, 23669; S 3018*

**Brassicaceae**

**Arabidopsis thaliana* (L.) Heynh., Mouse-ear cress; DA; ab?; *N 23673*

**Capsella bursa-pastoris* (L.) Medik, Common shepherd's purse; DA; o; *N 23679*

**Cardamine hirsuta* L., Hairy bittercress; DA; ab?; *G s.n.* [262107]

*Cardamine pensylvanica* Muhl. ex Willd., Quaker bittercress; DA; ab?; *N 23715*

*Lepidium virginicum* L. ssp. *virginicum*, Poor man's pepper; DA; i; *Z 2136*

**Lunaria annua* L., Annual honesty; DA; i; *N 23680*

**Bromeliaceae**

*Tillandsia usneoides* (L.) L., Spanish-moss; FP; o; *G s.n.* [262225]

**Cactaceae**

*Opuntia humifusa* Raf., Southern prickly-pear; DA; i-c; *N 23038* (s); *Z 2130*

**Calycanthaceae**

*Calycanthus floridus* L. var. *floridus*, Sweet-shrub; UF; i-o; *G s.n* [262105] (s);. *N 23056*

**Campanulaceae**

*Lobelia cardinalis* L., Cardinal flower; LM: FP; i; *Z 2389*

*Lobelia elongata* Small, Longleaf lobelia; PM; i; *G s.n.* [262167]

*Triodanis biflora* (Ruiz. & Pav.) Greene, Small Venus' looking-glass; DA; i; *N 23636*

**Wahlenbergia marginata* (Thunb.) DC., Southern rockbell; DA, UF; o; *G s.n.* [262241]; *N 23649*

**Cannabaceae**

*Celtis laevigata* Willd., Southern hackberry; DA, UF; r; *N 23671*; *G s.n.* [262122] (s)

**Caprifoliaceae**

**Lonicera fragrantissima* Lindl. & Paxton, Sweet breath-of-spring; [CAT 3]; DA; i; *N 23042* (s)

**Lonicera japonica* Thunb., Japanese honeysuckle; [CAT 1]; UF; o; *N 22925*

*Valerianella radiata* (L.) Dufr., Beaked cornsalad; DA; c; *N 23664*; *Z 2400*

**Caryophyllaceae**

**Cerastium glomeratum* Thuill, Sticky mouse-ear; DA; i; *N 23640*

**Stellaria media* (L.) Villars, Common chickweed; DA; i; *N 23622, 23629*

**Celastraceae**

*Euonymus americanus* L., Strawberry-bush; DA, UF; i; *G s.n.* [262147]; *N 23060*

**Cistaceae**

*Lechea mucronata* Raf., Hairy pinweed; DA; r; *N 24349*

*Lechea racemulosa* Michx., Illinois pinweed; DA; i; *N 24381*

**Commelinaceae**

*Commelina virginica* L., Virginia dayflower; FP; ab?; *N 22999*

**Murdannia keisak* (Hassek.) Hand.-Mazz., Marsh dewflower; [CAT 1]; DA, FP, PM; c; *G s.n.* [262182]; *N 23015* (s)

*Tradescantia ohiensis* Raf., Smooth spiderwort; UF; i; *G s.n.* [262226] (s)

**Convolvulaceae**

*Cuscuta gronovii* Willd., Common dodder; FP; i; *N 24365*

*Dichondra carolinensis* Michx., Carolina ponyfoot; DA; o; *N 23633*

*Ipomoea coccinea* L., Scarlet creeper; DA; ab?; *S 4103*

*Ipomoea cordatotriloba* Dennstedt var. *cordatotriloba*, Coastal morning-glory; DA; o; *G s.n.* [262154]; *Z 2369*

*Ipomoea hederacea* (L.) Jacq., Ivyleaf morning-glory; DA; o; *N 24395*; *Z 2378*

*Ipomoea pandurata* (L.) G.F.W. Mey., Wild sweet potato; DA; ab?; *N 22992*

**Jacquemontia tamnifolia* (L.) Griseb., Jacquemontia; [CAT 4]; DA; ab?; *S 4109*

**Cornaceae**

*Cornus florida* L., Flowering dogwood; UF; ab?; *G s.n.* [262126]

*Cornus stricta* Lam. [*C. foemina* Mill.], Southern swamp dogwood; PM, UF; o; *G s.n.* [262127] (s); *N 22962*

*Nyssa biflora* Walter, Swamp tupelo; FP; ab?; *G s.n.* [262185]

*Nyssa ogeche* Bartram ex Marshall, Ogeechee lime; FP; i; *G s.n.* [262186]

**Cucurbitaceae**

*Cayaponia quinqueloba* (Raf.) Shinners, Fivelobe melonleaf; Con; PM, LM: DA; r-o; *N 23064*; *Z 2259*

*Melothria pendula* L., Creeping cucumber; DA; ab?; *N 23007*

**Cyperaceae**

*Carex abscondita* Mack., Thicket sedge; UF; i; *N 23051*

*Carex albicans* Willd. ex Spreng. var. *australis* (L.H. Bailey) J. Rettig, Stellate sedge; UF; o; *G s.n.* [262108]

*Carex amphibola* Steud., Amphibious sedge; DA; i; *N 23663*

*Carex blanda* Dewey, Eastern woodland sedge; UF; i; *G s.n.* [262109]

*Carex cephalophora* Muhl. ex Willd., Oval-leaf sedge; DA; i; *N 23622*

*Carex crebriflora* Wiegand, Coastalplain sedge; UF; i; *G s.n.* [262110]

*Carex crinita* Lam., Fringed sedge; DA; o; *N 23016*

*Carex debilis* Michx., White-edge sedge; UF; i; *N 23697*

*Carex digitalis* Willd. var. *floridana* (L.H. Bailey) Naczi, Slender woodland sedge; DA; ab?; *N 23634*

*Carex flaccosperma* Dewey; Thinfruit sedge; LM: hab?; ab?; *S 4149*

*Carex frankii* Kunth, Frank's sedge; LM: DA, FP; o; *Z 2253*

*Carex joorii* L.H. Bailey, Joor'sedge; FP; i; *G s.n.* [262111]

*Carex laxiflora* Lam., Broad looseflower sedge; UF; i; *G s.n.* [262112]

*Carex leavenworthii* Dewey, Leavenworth's sedge; DA; ab?; *N 23653*

*Carex louisianica* L.H. Bailey, Louisiana sedge; PM; i; LM: DA, FP; o; *N 22945*; *Z 2251*

*Carex lupulina* Muhl. ex Willd., Hopsedge; PM; o; *N 22951*; *G s.n.* [262113]; *Z 2121*

*Carex lurida* Wahl., Shallow sedge; DA, UF; ab?; *N 23008*

*Carex muehlenbergii* Schkuhr ex Willd. var. *muehlenbergii*, Muehlenberg's sedge; DA; ab?; *N 23646*

*Carex oxylepis* Torr. & Hook., Sharpscale sedge; PM; ab?; *G s.n.* [262114], [ 262115]

*Carex retroflexa* Willd., Reflexed sedge; DA; i-o; *N 23661, 23668*

*Carex seorsa* Howe, Weak stellate sedge; PM; i; *G s.n.* [262116]

*Carex striatula* Michx., Lined sedge; UF; i; *G s.n* [262117]; *N 23691*

*Carex texensis* (Torr.) L.H. Bailey, Texas sedge; PM; ab?; *G s.n.* [262118]

*Carex typhina* Michx., Cattail sedge; PM, UF; i; *G s.n.* [262119]; *N 23041*

*Carex vulpinoidea* Michx., Fox sedge; DA, PM; ab?; *N 23711*

*Cyperus echinatus* (L.) Wood, Globe flatsedge; DA; c; *N 22953*

*Cyperus erythrorhizos* Muhl., Redroot flatsedge; FP, PM; c; *N 24375*

**Cyperus iria* L., Ricefield flatsedge; DA; i; *G s.n.* [262130]

*Cyperus retrorsus* Chapm., Pinebarren flatsedge; DA, PM; o; *G s.n.* [262131]; *N 22997*; *Z 2280*

*Cyperus strigosus* L., False nutsedge; DA; ab?; *G s.n.* [262132]; *N 23009*

*Cyperus virens* Michx., Green flatsedge; FP, PM; o; *G s.n.* [262133]; *N 22943*

*Rhynchospora globularis* (Chapm.) Small var. *globularis*, Globe beaksedge; FP, PM; ab?; *G s.n.* [262213]

*Scirpus cyperinus* (L.) Kunth, Woolgrass bulrush; FP, PM; o-c; *G s.n.* [262218]; *N 22967*; *Z 2278*

**Dioscoreaceae**

**Dioscorea polystachya* Tucz., Cinnamon vine; [CAT 2]; PM; ab?; *N 22978* (s)

**Ebenaceae**

*Diospyros virginiana* L., American persimmon; DA, UF; ab?; *N 22930* (s)

**Elaeagnaceae**

**Elaeagnus pungens* Thunb., Thorny-olive; [CAT 2]; UF; ab?; *G s.n.* [262141] (s)

**Ericaceae**

*Lyonia lucida* (Lam.) K. Koch, Shining fetterbush; FP; o; *G s.n.* [262176]

*Rhododendron canescens* (Michx.) Sweet, Piedmont azalea; UF; ab?; *N 23692*

*Vaccinium arboreum* Marshall, Sparkleberry; hab?; ab?; *G s.n.* [262232]

*Vaccinium corymbosum* L., Smooth highbush blueberry; DA; ab?; *G s.n.* [262233] (s)

**Euphorbiaceae**

*Acalypha rhomboidea* Raf., Rhombic copperleaf; DA; i; *N 24413*

*Cnidoscolus stimulosus* (Michx.) Engelm. & A. Gray, Spurge-nettle; DA; i; *N 23041*

**Croton capitatus* Michx., Woolly croton; DA; ab?; *N 24408*

*Euphorbia cyathophora* Murr., Painted leaf; DA; i; *Z 2379*

*Euphorbia hyssopifolia* L. [*Chamaesyce hyssopifolia* (L.) Small], Hyssopleaf sandmat; hab?; i; *S 4052*

**Triadica sebifera* (L.) Small, Chinese tallow-tree; [CAT 1]; FP, PM; i-c; *N 22965* (s), *24376*; *Z 2103*

**Fabaceae**

**Albizia julibrissin* Durazz., Silktree; [CAT 1]; DA, UF; ab?; *N 22952*

*Centrosema virginianum* (L.) Benth., Spurred butterfly-pea; DA; i; *Z 2371*

*Cercis canadensis* L. var. *canadensis*, Eastern redbud; DA/UF; o-c; *N 22926*; *Z 2360*

*Chamaecrista nictitans* (L.) Moench var. *nictitans*, Common sensitive-plant; DA; ab?; *G s.n.* [262124]
*Desmodium ciliare* (Muhl. ex Willd.) DC., Hairy small-leaf ticktrefoil; DA; i; *G s.n.* [262134]
*Desmodium paniculatum* (L.) DC. var. *paniculatum*, Panicled ticktrefoil; DA; ab?; *G s.n.* [262135]
*Galactia volubilis* (L.) Britton var. *volubilis*, Eastern milkpea; DA; o; *Z 2276*
**Lespedeza cuneata* G. Don, Sericea lespedeza; [CAT 1]; DA; c; *G s.n.* [262161]; *Z 2383*
*Lespedeza stuevei* Nutt., Velvety lespedeza; DA; o; *Z 2373*
**Pueraria montana* (Lour.) Merr. var. *lobata* (Willd.) Maes. & Alm., Kudzu; [CAT 1]; DA; c; *N 24392*
**Senna obtusifolia* (L.) Irwin & Barneby, Sicklepod; DA; o; *Z 2375*
**Sesbania punicea* Benth., Rattlebox; [CAT 2]; PM; o; *Z 2284*
*Sesbania vesicaria* (Jacqu.) Elliott [*Glottidium vesicarium* (Jacq.) R.M. Harper], Bladderpod; FP; c; *N 24369*
*Tephrosia spicata* (L.) Pers., Spiked hoarypea; DA; i; *N 23027*
**Trifolium arvense* L., Rabbitfoot clover; DA; c; *Z 2113*
**Trifolium dubium* Sibth., Low hop clover; DA; i; *N 23618, 23626; S 3066*
**Vicia hirsuta* (L.) S.F. Gray, Tiny vetch; DA; ab?, *N 23713*
**Vicia lathyroides* L., Spring vetch; DA; ab?; *N 23620*
**Vicia sativa* (L.) Ehret ssp. *nigra* (L.) Ehrh., Narrowleaf vetch; DA; ab?; *N 23631; S 3044*
**Vicia tetrasperma* (L.) Scherb., Slender vetch; DA; ab?; *N 23665*
**Wisteria sinensis* (Sims) DC., Chinese wisteria; [CAT 1]; DA; ab?; *G s.n.* [262242]

**Fagaceae**
*Castanea pumila* (L.) Mill., Common chinquapin; UF; ab?; *N 24378* (s)
*Fagus grandifolia* Ehrh., American beech; UF; i; *N 23687*
*Quercus coccinea* Wangenh., Scarlet oak; LM: DA, FP; i; *Z 2265*
*Quercus falcata* Michx., Spanish oak; UF; ab?; *G s.n.* [262207]
*Quercus laurifolia* Michx., Laurel oak; FP; ab?; *G s.n.* [262208] (s)
*Quercus lyrata* L., Overcup oak; FP; ab?; *G s.n.* [262209] (s)
*Quercus michauxii* Nutt., Basket oak; DA; ab?; *S 3075*
*Quercus nigra* L., Water oak; FP, UF; LM: DA, FP; o; *G s.n.* [262210]; *Z 2266, 2285* (s), *2287* (s)
*Quercus phellos* L., Willow oak; UF; ab?; *S 4127* (s)
*Quercus shumardii* Buckley, Shumard oak; UF; ab?; *G s.n.* [262211]
*Quercus velutina* Lam., Black oak; UF; LM: DA, FP; i; *N 23040* (s); *Z 2262*

**Gelsemiaceae**
*Gelsemium sempervirens* (L.) St.-Hil., Carolina jessamine; UF; ab?; *G s.n.* [262149]

**Geraniaceae**
*Geranium carolinianum* L., Carolina crane's-bill; DA; i; *N 23624*
**Geranium molle* L., Dove's-foot crane's-bill; DA; ab?; *N 23678*

**Haloragaceae**
**Myriophyllum aquaticum* (Vell.) Verdc., Parrot-feather; [CAT 2]; PM; i-c; *N 22948* (s), *24411*(s); *Z 2115* (s)

**Hamamelidaceae**
*Hamamelis virginiana* L., Witch-hazel; UF; i; *N 23689* (s)

**Hydrangeaceae**
*Hydrangea quercifolia* Bartram, Oakleaf hydrangea; UF; ab?; *G s.n.* [262151]; *N 23693* (s)

**Hydrocharitaceae**
**Najas minor* All., Spinyleaf naiad; PM; c?; *N 22949* (s)

**Hydroleaceae**
*Hydrolea quadrivalvis* Walter, Waterpod; PM; ab?; *N 22981*

**Hypericaceae**
*Hypericum gentianoides* (L.) Britton, Sterns & Poggenb., Pineweed; DA; o; *N 24397*
*Hypericum hypericoides* (L.) Krantz, St. Andrew's cross; UF; ab?; *G s.n.* [262152]
*Hypericum mutilum* L., Dwarf St.-John's-wort; DA; i; LM: DA, FP; i; *N 23002; Z 2250*
*Hypericum walteri* J.F. Gmel. [*Triadenum walteri* (J.F. Gmel.) Gleason], Walter's marsh St.-John's-wort; PM; o; *N 22984* (s)

**Iridaceae**
*Iris hexagona* Walter, Anglepod blue flag; PM; i; *N 23698; Z 2102*
*Sisyrinchium atlanticum* E.P. Bicknell, Atlantic blue-eyed grass; UF; ab?; *S 4164*

**Iteaceae**
*Itea virginica* L., Virginia-willow; FP; o; *G s.n.* [262156]

**Juglandaceae**
*Carya cordiformis* (Wang.) K. Koch, Bitternut hickory; UF; i; *N 23058* (s)
*Carya glabra* (Mill.) Sweet, Pignut hickory; UF; ab?; *G s.n.* [262121]
**Carya illinoinensis* (Wangenh.) K. Koch, Pecan; DA; ab?; *N 22989*
*Carya ovata* (Mill.) K. Koch, Common shagbark hickory; UF; o-c; *Z 2292* (s), *2399*
*Carya pallida* (Ashe) Engl. & Graebn., Sand hickory; UF; ab?; *S 3092*
*Carya tomentosa* (Lam. ex Poir.) Nutt. ex Elliott [*C. alba* (L.) Nutt.], Mockernut hickory; UF; ab?; *G s.n.* [262120] (s)

**Juncaceae**
*Juncus coriaceus* Mack., Leathery rush; FP; ab?; *G s.n.* [262157]
*Juncus dichotomus* Elliott, Forked rush; PM, UF; i-o; *G s.n.* [262158], [262159]
*Luzula bulbosa* (Alph. Wood) Smyth & L.C.R. Smyth, Bulbous wood-sedge; DA; i; *N 23647*
*Luzula echinata* (Small) F.J. Hermann, Spreading wood-rush; UF; i-o; *G s.n.* [262174]; *N 23688*

**Lamiaceae**
*Callicarpa americana* L., Beautyberry; UF; i; *N 23023*
**Lamium amplexicaule* L., Henbit; DA; o; *N 23643*
**Lamium purpureum* L., Purple dead-nettle; DA; ab?; *N 23652*
*Lycopus rubellus* Moench., Stalked bugleweed; DA, FP; r-i; *N 23034* (s); *24366*
*Monarda punctata* L., Eastern horse-mint; DA; ab?; *N 24406*
**Perilla frutescens* (L.) Britton, Beefsteak plant; LM: DA; c; *Z 2386*
*Salvia lyrata* L, Lyreleaf sage; DA; ab?; *N 23659*
*Scutellaria lateriflora* L., Mad dog skullcap; FP; i; *N 24373* (s)
**Stachys floridana* Shuttlw. ex Benth., Florida betony; [CAT 3]; DA; c; *N 24394* (s)
*Trichostema dichotomum* L., Common blue curls; DA, UF; ab?; *G s.n.* [262227]

**Lauraceae**
*Lindera benzoin* (L.) Blume, Northern spicebush; hab?; i; *G s.n.* [262164]
*Persea palustris* (Raf.) Sargent, Swamp bay; FP; i; *N 23020*
*Sassafras albidum* (Nutt.) Nees, Sassafras; DA, UF; i; *N 23031* (s); *Z 2361* (s)

**Liliaceae**
*Erythronium umbilicatum* Parks & Hardin, Trout lily; UF; i; *N 23685*

**Linderniaceae**
*Lindernia dubia* (L.) Pennell var. *dubia*, Moistbank false pimpernel; FP, PM; c; *G s.n.* [262165]; *N 24374*

**Magnoliaceae**
*Liriodendron tulipifera* L., Tulip-tree; UF; o; *N 23013* (s); *S 4156*
*Magnolia grandiflora* L., Southern magnolia; UF; r; *N 23049* (s)

*Magnolia virginiana* L., Sweet bay; DA; i; *N 23029* (s)

**Malvaceae**

*Hibiscus laevis* All., Smooth rose-mallow; PM; i-o; *N 22973, 24414; Z 2116*

*Modiola caroliniana* (L.) G. Don, Bristly-mallow; DA; ab?; *N 24410*

**Sida rhombifolia* L., Arrowleaf sida; DA; ab?; *G s.n.* [262220]

**Melanthiaceae**

*Trillium maculatum* Raf., Mottled trillium; PM?; ab?; *S 3047*

**Meliaceae**

**Melia azedarach* L., Chinaberry; [CAT 1]; DA; ab?; *G s.n.* [262178]

**Menispermaceae**

*Calycocarpum lyonii* (Pursh) A. Gray, Cupseed; PM; ab?; *G s.n.* [262106]

*Cocculus carolinus* (L.) DC., Coralbeeds; DA; o; *N 22959; Z 2099* (s)

*Menispermum canadense* L., Moonseed; DA, PM; ab?; *G s.n.* [262179] (s)

**Moraceae**

**Morus alba* L., White mulberry; [CAT 3]; DA; r-c; *N 23037* (s), *23676; Z 2125*

*Morus rubra* L., Red mulberry; UF; LM: DA, FP; i-o; *G s.n.* [262181] (s); *N 22939* (s); *Z 2261* (s)

**Myricaceae**

*Morella cerifera* (L.) Small, Common wax-myrtle; DA; ab?; *S 4113*

**Nyctaginaceae**

**Mirabilis jalapa* L., Garden four-o'clock; DA; o; *Z 2377*

**Oleaceae**

*Forestiera acuminata* (Michx.) Poir., Swamp privet; PM; o; *N 22972* (s)

*Fraxinus caroliniana* Mill., Water ash; FP; i; *N 22985* (s)

*Fraxinus pennsylvanica* Marshall, Green ash; FP; ab?; *N 22940* (s)

**Ligustrum japonicum* Thunb., Japanese privet; [CAT 2]; DA; o; *N 23046*

**Ligustrum sinense* Lour., Chinese privet; [CAT 1]; FP, UF; c; *N 23012; Z 2283*

**Onagraceae**

*Ludwigia decurrens* Walter, Wingstem water-primrose; PM; o; *G s.n.* [262169; specimen comprises detached infructescences], [262170]

*Ludwigia glandulosa* Wahl., Small-flowered seedbox; PM; o; *N 22950*

*Ludwigia leptocarpa* (Nutt.) Hara, Water-willow; FP; ab?; *G s.n.* [262171]

*Ludwigia palustris* (L.) Elliott, Common water-purslane; DA; ab?; *N 23001*

*Ludwigia peploides* Kunth var. *glabrescens* (Kuntze) Shinners, Floating primrosewillow; PM; r; *G s.n.* [262172]; *Z 2120*

*Ludwigia repens* J.R. Forst., Creeping seedbox; hab?; ab?; *G s.n.* [262173]

*Oenothera laciniata* L., Cutleaf evening-primrose; DA; ab?; *G s.n.* [262187]

**Orchidaceae**

*Tipularia discolor* (Pursh) Nutt., Cranefly orchid; UF; r; *N 23700* (s)

**Orobanchaceae**

*Agalinis fasciculata* Raf., Beach false foxglove; DA; i-c; *N 24401, 24407; S 4114; Z 2374*

**Oxalidaceae**

*Oxalis dillenii* Jacq., Southern yellow wood-sorrel; DA; i; *N 23066; 23625; S 3065*

**Oxalis articulata* Savigny in Lam. [*O. rubra* A. St.-Hil.], Windowbox wood-sorrel; DA; o; *Z 2134*

**Passifloraceae**

*Passiflora incarnata* L., Maypops; DA; o; *N 22957*

*Passiflora lutea* L. var. *lutea*, Eastern yellow passionflower; UF; ab?; *N 22938* (s)

**Phyrmaceae**

*Mimulus alatus* Aiton, Winged monkey-flower; PM; LM: DA, FP; o; *N 22977; Z 2274*

**Plantaginaceae**

*Callitriche heterophylla* Pursh var. *heterophylla*, Common water-starwort; LM: PM, ab?; *S 4145*

*Nuttallanthus canadensis* (L.) D.A. Sutton, Common toadflax; DA; i; *G s.n.* [262184]; *N 23648*

**Plantago aristata* Michx., Buckthorn plantain; DA; o; *Z 2132a*

**Plantago lanceolata* L., English plantain; DA; o; *Z 2133*

*Plantago rugellii* Desc., American plantain; LM: DA; o; *Z 2268*

*Plantago wrightiana* Desc., Wright's plantain; DA; o; *Z 2132b*

**Veronica arvensis* L., Corn speedwell; DA; ab?; *N 23619; S 3037*

**Platanaceae**

*Platanus occidentalis* J.F. Gmel., Sycamore; PM, UF; i-c; *G s.n.* [262200]; *Z 2289*

**Poaceae**

*Andropogon glomeratus* (Walter) Britton, Bushy bluestem; DA; o; *Z 2364*

*Andropogon ternarius* Michx. var. *ternarius*, Splitbeard bluestem; DA; o; *Z 2372*

*Aristida purpurascens* Poir. Arrowfeather; DA; i-c; *N 24379, 24398*

*Arundinaria gigantea* (Walter) Muhl., Giant cane; DA; o; *N 23010* (s); *Z 2107* (s)

*Axonopus compressus* (Sw.) Beav., Southern carpet grass; PM; ab?; *N 22964*

**Briza minor* L., Lesser quaking grass; DA; o; *N 23644*

**Bromus catharticus* Vahl var. *catharticus*, Rescue grass; DA; o-c; *N 23628*

**Bromus commutatus* Schrad., Hairy Chess; DA; c; *N 22988*

*Chasmanthium latifolium* (Michx.) Yates, River oats; UF; c; *N 22936*

*Chasmanthium laxum* (L.) Yates, Slender spikegrass; DA; i; *N 23028*

**Cynodon dactylon* (L.) Pers. var. *dactylon*, Bermuda grass; [CAT 2]; DA; c; *Z 2112*

**Dactylis glomerata* L., Orchard grass; DA; c; *Z 2094*

*Danthonia spicata* (L.) Beauv., Poverty oatgrass; DA; o; *N 23035*

*Dichanthelium aciculare* (Desv. ex Poir.) Gould & C.A. Clark, Witch grass; DA; o; *N 22995*

*Dichanthelium dichotomum* (L.) Gould var. *dichotomum*, Cypress witch grass; DA; c; *N 23047*

*Dichanthelium commutatum* (Schult.) Gould var. *commutatum*, Variable witch grass; UF?; ab?; *S 4068*

*Dichanthelium scoparium* (Lam.) Gould, Velvet witch grass; DA; ab?; *N 23000*

*Digitaria ciliaris* (Retz.) Koeler, Southern crab grass; DA; ab?; *G s.n.* [262137]

**Digitaria sanguinalis* (L.) Scop., Northern crab grass; DA; c; *N 24384*

*Digitaria serotina* (Walter) Michx., Dwarf crab grass; DA; o; *G s.n.* [262138]

**Echinochloa crusgalli* (L.) Beauv. var. *crusgalli*, Barnyard-grass; DA, FP; i-c; *N 24370, 24391*

*Elymus virginicus* L. var. *virginicus*, Common eastern wild-rye; PM; i; *N 22980, G s.n.* [262143]

**Eragrostis cilianensis* (All.) Vignolo ex Janch., Stinkgrass; DA; ab?; *G s.n.* [262144]

**Eragrostis curvula* Nees, Weeping lovegrass; [CAT 3]; DA; c; *N 24386*

*Eragrostis spectabilis* (Pursh) Steudel, Purple lovegrass; DA. FP; i; *G s.n.* [262145]; *N 24382; S 4060*

*Festuca subverticillata* (Pers.) Alexeev, Nodding fescue; DA; c; *Z 2108*

*Leersia lenticularis* Michx., Catchfly cutgrass; LM: FP; i; *Z 2388*

*Leersia oryzoides* (L.) Sw., Rice cutgrass; FP, PM; i; *G s.n.* [262163]; *N 22974; Z 2382*

*Leersia virginica* Willd., White cutgrass; PM; o; *N 22944*

**Lolium perenne* L. var. *aristatum* Willd., Italian ryegrass; hab?; ab?; *G s.n.* [262168]
*Melica mutica* Walter, Two-flower melic; DA, UF; i; *N 23674*
*Oplismenus hirtellus* (Lam.) Roem. & Schult., Woods-grass; DA, FP, UF; c; *G s.n.* [262189]; *N 22933, 24363*
*Panicum anceps* Michx., Beaked panicum; DA, FP, PM; o; *N 22963; Z 2367*
*Panicum rigidulum* Bosc ex Nees, Redtop panicum; PM; o; *N 22947*
*Panicum virgatum* L., Switchgrass; DA, UF; ab?; *G s.n.* [262193]
**Paspalum dilatatum* Poir. ssp. *dilatatum*, Dallis grass; DA; c; *G s.n.* [262194]; *Z 2105*
*Paspalum floridanum* Michx., Florida paspalum; DA; o; *Z 2363*
**Paspalum notatum* Flügge var. *saurae* Parodi, Bahia grass; [CAT 2]; DA; o; *N 22955*
**Paspalum urvillei* Steud., Vasey grass; [CAT 3]; DA; o; *N 22954*
*Phanopyrum gymnocarpon* (Elliott) Nash, Swamp phanopyrum; FP, PM; o-c; *G s.n.* [262197], [262198]; *Z 2381*
**Phyllostachys aurea* Carrière ex Rivière & C. Rivière, Golden bamboo; [CAT 2]; DA; c; *N 24400* (s)
*Piptochaetium avenaceum* (L.) Parodi, Eastern needlegrass; DA; o-c; *N 23657; Z 2397*
**Poa annua* L., Annual bluegrass; [CAT 3]; DA; o; *N 23637*
*Poa autumnalis* Muhl., Autumn bluegrass; PM; i; *G s.n.* [262201]
**Poa compressa* L., Canada bluegrass; DA; i; *N 23630*
*Saccharum giganteum* (Walter) Pers., Sugarcane plume grass; DA; ab?, *G s.n.* [262217]
**Schedonorus arundinaceus* (Schreb.) Dumort., Tall fescue; [CAT 3]; DA; i-c; *N 23651, 24393*
*Setaria parviflora* (Poir.) Kerguelen, Knotroot bristlegrass; DA; i; *G s.n.* [262219]; *Z 2368*
*Sorghastrum nutans* (L.) Nash, Yellow Indiangrass; DA; o; *Z 2366*
**Sorghum bicolor* (L.) Moench.; DA; i; *N 24383*
**Sorghum halepense* (L.) Pers., Johnson grass; [CAT 3]; DA; o; *N 22986*
*Tridens flavus* (L.) Hitchc., Redtop; DA; ab?; *G s.n.* [262228]
**Vulpia myuros* (L.) Gmel., Rat-tail fescue; DA; c; *N 23677*

**Polygonaceae**

*Brunnichia ovata* (Walter) Shinners, Buckwheat-vine; PM; o-c; *N 22961, 22983; Z 2123* (s), *2282*
*Persicaria hydropiperoides* (Michx.) Small [*Polygonum hydropiperoides* Michx.], Swamp smartweed; PM; c; *Z 2118*
**Persicaria longiseta* (Bruijin) Kitag. [*Polygonum cespitosum* var. *longisetum* Bruijin], Longbristle smartweed; [CAT 4]; LM: DA, FP; c; *Z 2249*
*Persicaria sagittata* (L.) Fross ex Nakai [*Polygonum sagittatum* L.], Arrowleaf tearthumb; FP; ab?; *G s.n.* [262204]
*Persicaria virginiana* (L.) Gaertn. [*Polygonum virginianum* L.], Jumpseed; PM, UF; i-o; LM: DA, FP; i; *G s.n.* [262205]; *N 23024; Z 2255*
**Rumex acetosella* L., Red dock; DA; ab?; *G s.n.* [262215]
**Rumex crispus* L., Curly dock; PM; ab?; *G s.n.* [262216]
*Rumex hastatulus* Baldwin, Wild dock; DA; c; *Z 2135*

**Ranunculaceae**

*Ranunculus abortivus* L., Kidneyleaf buttercup; DA; i; *N 23708; S 3051*

**Rhamnaceae**

*Berchemia scandens* (Hill.) K. Koch, Supplejack; DA, FP, PM; i-o; *G s.n.* [262101]; *N 22971; Z 2128* (s)

**Rosaceae**

*Agrimonia pubescens* Wallr., Downy agrimony; LM: DA, FP; o; *Z 2267*
**Aphanes australis* Rydb. [*A. microcarpa* (Boiss. & Reut.) Rothm.], Parsley-piert; DA; o; *N 23635*
*Crataegus aprica* Beadle, Sunny hawthorn; DA; o; *N 23681*
*Crataegus dispar* Beadle, Aiken hawthorn; UF; r; *N 23658*
*Crataegus marshallii* Eggl., Parsley haw; DA; ab?; *G s.n.* [262128] (s)
*Crataegus spathulata* Michx., Littlehip hawthorn; DA, UF; o; *N 22928* (s), *22996* (s)
*Crataegus uniflora* Muenchh., Oneflower hawthorn; UF; ab?; *G s.n.* [262129] (s)
*Crataegus viridis* L., Green hawthorn; UF; LM: DA, FP; i: *N 22946* (s); *Z 2264* (s)
*Malus angustifolia* (Aiton) Michx., Wild crabapple; DA, UF; ab?; *G s.n.* [262177] (s); *N 23003*
**Potentilla indica* (Andr.) T. Wolf [*Duchesnea indica* (Andrews) Focke], Indian-strawberry; DA; ab?; *G s.n.* [262140]; *S 3029*
*Prunus angustifolia* Marshall var. *angustifolia*, Chickasaw plum; DA; ab?; *S 4171*
*Prunus caroliniana* (Mill.) Aiton, Carolina laurel cherry; DA, UF; c; *N 22931; Z 2091*
*Prunus serotina* Ehrh. var. *serotina*, Black cherry; DA, UF; o; *G s.n.* [262206]; *Z 2124*
**Pyracantha koidzumii* (Hayata) Rehder, Formosan firethorn; CULT; *Z 2359*
*Rubus pensilvanicus* Poir. [*R. argutus* Link], Pennsylvania blackberry; DA, PM; ab?; *G s.n.* [262214]; *N 23710*
*Rubus trivialis* Michx., Southern dewberry; DA; c; *N 23670*
**Spiraea cantoniensis* Lour., Reeve's meadowsweet; UF?/CULT?; ab?; *G s.n.* [262223] [Plants persisting from cultivation?]
**Spiraea thunbergii* Siebold ex Blume, Thunberg's meadowsweet; UF?/CULT?; ab?; *G s.n.* [262224] [Plants persisting from cultivation?]

**Rubiaceae**

*Cephalanthus occidentalis* L., Buttonbush; PM; o; G s.n. [262123]; *N 22982*
*Diodia teres* Walter, Poorjoe; DA; o; *G s.n.* [262139]; *N 29113*
*Diodia virginiana* L., Virginia buttonweed; DA; ab?; *N 23006*
*Galium aparine* L., Cleavers; DA; o; *N 22667*
**Galium sherardia* E.H.L. Krause, [*Sherardia arvensis* L.], Field-madder; DA; o; *N 23645*
*Galium triflorum* Michx., Sweet-scented bedstraw; PM; r; *Z 2119*
*Houstonia pusilla* Schoepf, Tiny bluet; DA; c; *N 23641*
*Mitchella repens* L., Partridge-berry; UF; ab?; *G s.n.* [262180] (s)
**Richardia brasiliensis* Gomes, Tropical Mexican-clover; DA?; ab?; *S 4058*

**Rutaceae**

*Ptelea trifoliata* L., Hop-tree; UF; o; *Z 2288* (s)

**Santalaceae**

*Phoradendron serotinum* (Raf.) M. C. Johnst. ssp. *serotinum*, American mistletoe; DA; o; *Z 2398*

**Sapindaceae**

*Acer floridanum* (Chapm.) Pax [*A. barbatum* Michx.], Southern sugar maple; UF; i; *N 23062* (s)
*Acer negundo* L., Box elder; FP, UF; o; *N 23068; 23695* (s)
*Acer rubrum* L., Red maple; UF; o; *N 22942* (s)
*Acer saccharinum* L., Silver maple; UF; ab?; *N 22935* (s)
*Aesculus pavia* L. var. *pavia*, Red buckeye; FP, UF; ab?; *N 23005, 23683*
*Aesculus sylvatica* R. Bartram, Painted buckeye; UF; ab?; *N 23705*
**Koelreuteria paniculata* Laxm., Golden rain tree; DA; i; *N 24405; Z 2092*

**Sapotaceae**

*Sideroxylon lanuginosum* L., Gum bumelia; UF; r-i; *N 23050* (s), *23656*
*Sideroxylon lycioides* L., Buckthorn bumelia; DA, PM; r-i; *N 22966* (s); *Z 2114* (s)

**Saururaceae**

*Saururus cernuus* L., Lizard's-tail; PM, i; LM: DA, FP; o; *N 23018; Z 2254*

**Scrophulariaceae**

**Verbascum thapsus* L., Woolly mullein; [CAT 4]; DA; r; *Z 2362*

**Simaroubaceae**
**Ailanthus altissima* (Mill.) Swingle, Tree-of-heaven; [CAT 1]; DA; o; *N 23036* (s)

**Smilacaceae**
*Smilax bona-nox* L., Catbrier; DA, PM; o-c; *N 22929; 23069; Z 2097*
*Smilax glauca* Walter, Whiteleaf greenbrier; PM; c; *Z 2281* (s)
*Smilax hispida* Raf. [*S. tamnoides* L.], Bristly greenbrier; DA; ab?; *G s.n.* [262221]
*Smilax laurifolia* L., Bamboo vine; LM: DA, FP; o; *Z 2258*
*Smilax rotundifolia* L., Common greenbrier; LM: DA, FP; o; *Z 2260* (s)
*Smilax smallii* Morong, Jackson-brier; UF; o; *G s.n.* [262222]; *N 23057* (s)

**Solanaceae**
**Salpichroa origanifolia* Thell., Lily-of-the-valley vine; DA; o; *H s.n.*

**Styracaceae**
*Halesia carolina* L., Little silverbell; UF; i; *N 23022; 23061*
*Halesia tetraptera* J. Ellis, Common silverbell; UF; ab?; *N 23706*

**Symplocaceae**
*Symplocos tinctoria* (L.) L'Hér., Sweetleaf; UF; i; *N 23690*

**Tetrachondraceae**
*Polypremum procumbens* L., Rustweed; DA; c; *N 22958*

**Typhaceae**
*Typha latifolia* L., Common cattail; FP, PM; i; *Z 2104*

**Ulmaceae**
*Planera aquatica* Walter ex J. F. Gmel.; Planer-tree; FP; i; *N 23067* (s)
*Ulmus alata* Michx., Winged elm; FP, UF; i; *G s.n.* [262229]; *N 22937* (s)
*Ulmus americana* L., American elm; UF; LM: DA, FP; i-c; *G s.n.* [262230]; *Z 2106* (s); *2263* (s), *2396* (s)
*Ulmus rubra* Muhl., Slippery elm; FP; o; *G s.n.* [262231] (s); *N 22941* (s)

**Urticaceae**
*Boehmeria cylindrica* (L.) Sw., False-nettle; DA; i; *N 23017*
*Laportea canadensis* (L.) Wedd., Wood-nettle; LM: DA, FP; o; *Z 2390*
*Pilea pumila* (L.) A. Gray, Greenfruit clearweed; FP; o; *N 24368*

**Verbenaceae**
**Glandularia pulchella* (Sweet) Tronc., Moss vervain; DA; o-c; *G s.n.* [262150]; *N 24404*
**Verbena bonariensis* L., Purpletop vervain; [CAT 4]; DA; ab?; *N 22991*
**Verbena rigida* Spreng., Tuberous vervain; DA; o; *N 22956; 24396; Z 2111*

**Violaceae**
**Viola arvensis* Murray, European field-pansy; DA; o; *N 23627*
*Viola bicolor* Pursh, Wild pansy; DA; ab?; *G s.n.* [262237]; *N 23714*
*Viola primulifolia* Willd., Primrose-leaf violet; DA; ab?; *G s.n.* [262238] (s)
*Viola sororia* Willd. [*V. affinis* Leconte], Common blue violet; DA, UF; i-o; *G s.n.* [262239]; *N 23638; S 3056*

**Vitaceae**
*Ampelopsis arborea* (L.) Koehne, Peppervine; DA; ab?; *N 22993*
*Vitis aestivalis* Michx. var. *bicolor* Deam, Silverleaf grape; FP, PM; ab?; *G s.n.* [262240]
*Vitis cinerea* (Engelm.) Millard var. *floridana* Munson, Florida grape; DA; o; *N 23043; Z 2126*
*Vitis rotundifolia* Michx., Muscadine; DA, UF; c; *N 23039* (s); *Z 2109*
*Vitis vulpina* L., Frost grape; DA, UF; o-c; *N 23045; Z 2098* (s)

## APPENDIX 1
## VASCULAR PLANTS REPORTED FROM OCMULGEE NATIONAL MONUMENT

The following 189 unvouchered vascular plant species have been cited for Ocmulgee National Monument in various NPS reports and databases (Froeschauer 1989; Puckett 1997; Burkholder et al. 2010; NPS 2012c). Where applicable, the name on the original lists (in brackets) follows the current accepted synonym. Although many of these taxa may presently occur (or may have occurred) within park boundaries, a significant percentage of these names likely represent misidentifications of species listed in the "Annotated List" of vouchered specimens.

Amaranthaceae: *Amaranthus hybridus* L.
Apiaceae: *Ptilimnium capillaceum* (Michx.) Raf.; *Sanicula marilandica* L.
Apocynaceae: *Amsonia tabernaemontana* Walter; *Apocynum cannabinum* L.; *Asclepias tuberosa* Elliott; *Matelea obliqua* (Jacq.) Woods. [*M. carolinensis* (Jacq.) Woods.]
Araceae: *Lemna perpusilla* Torr.; *Spirodela polyrhiza* (L.) Schleid.
Aristolochiaceae: *Asarum canadense* L.
Asparagaceae: *Liriope muscari* Bailey; *Ornithogalum umbellatum* L.; *Maianthemum racemosum* (L.) Link [*Smilacina racemosa* (L.) Desf.]; *Yucca flaccida* Haw.
Asteraceae: *Ampelaster carolinianus* (Walter) Nesom [*Aster carolinianus* Walter]; *Baccharis halimifolia* L.; *Balduina angustifolia* (Pursh) B.L. Rob.; *Bidens aristosa* (Michx.) Britton; *Chrysogonum virginianum* L.; *Chrysopsis mariana* (L.) Elliott [*Heterotheca mariana* (L.) Shinners]; *Elephantopus tomentosus* L.; *Erigeron annuus* (L.) Pers.; *E. quercifolius* Lam.; *E. strigosus* Muhl. ex Willd. var. *calcicola* J.R. Allison; *Eupatorium capillifolium* L.; *Helianthus angustifolius* L.; *H. annuus* L.; *H.* strumosus L.; *Heterotheca subaxillaris* (Lam.) Britton & Rusby; *Krigia cespitosa* (Raf.) K.L. Chambers; *K. dandelion* (L.) Nutt.; *Packera anonyma* L. [*Senecio smallii* Britton]; *Pluchea camphorata* (L.) DC.; *Pseudognaphalium obtusifolium* L. var. *obtusifolium* [*Gnaphalium obtusifolium* L.]; *Pyrrhopappus carolinianus* (Willd.) Ohwi; *Rudbeckia hirta* L.; *Solidago canadensis* L. var. *scabra* (Muhl. ex Willd.) Torr. & A. Gray; *S. chapmanii* A. Gray [*S. odora* Aiton]; *S. erecta* Pursh; *S. gigantea* Aiton; *Symphyotrichum puniceum* (L.) Á. Löve & D. Löve var. *puniceum*; *Taraxacum officinale* L.; *Verbesina alternifolia* (L.) Britton ex Kearney [*Actinomeris alternifolia* DC.]; *Vernonia acaulis* (Walter) Gleason; *V. angustifolia* Michx.; *V. flaccidifolius* Small; *V. noveboracensis* L.
Balsaminaceae: *Impatiens capensis* Meerb.
Betulaceae: *Alnus serrulata* (Aiton) Willd.
Blechnaceae: *Woodwardia virginica* (L.) Sm.
Boraginaceae: *Myosotis verna* Nutt.; *Phacelia maculata* Wood
Cactaceae: *Opuntia ficus-indica* (L.) Mill.
Campanulaceae: *Triodanis perfoliata* (L.) Nieuwl.
Cannabaceae: *Celtis occidentalis* L.
Commelinaceae: *Commelina communis* L.; *Tradescantia virginiana* L.
Convolvulaceae: *Calystegia spithamaea* (L.) Pursh; *C. sepium* (L.) R. Br. [*Convolvulus sepium* L.]; *Ipomoea lacunosa* L.; *I. nil* (L.) Roth
Cornaceae: *Nyssa sylvatica* Marshall
Cyperaceae: *Carex atlantica* L.H. Bailey; *C. gigantea* Rudge; *C. intumescens* Rudge; *C. nigromarginata* Schwein.; *C. scoparia* Schkuhr ex Willd.; *C. styloflexa* Buckley; *C. venusta* Dewey
Dioscoreaceae: *Dioscorea floridana* Bartlett

Elaeagnaceae: *Elaeagnus commutata* Bernh.
Equisetaceae: *Equisetum hyemale* L.
Ericaceae: *Chimaphila maculata* (L.) Pursh; *Monotropa uniflora* L.; *Vaccinium stamineum* L.

Euphorbiaceae: *Acalypha gracilens* A. Gray; *Euphorbia maculata* L. [*Chamaesyce maculata* (L.) Small]
Fabaceae: *Amorpha fruticosa* L.; *Chamaecrista fasciculata* (Michx.) Greene; *Clitoria mariana* L.; *Desmodium perplexum* B.G. Schub.; *Erythrina herbacea* L.; *Hylodesmum nudiflorum* (L.) H. Ohashi & R.R. Mill [*Desmodium nudiflorum* (L.) DC.]; *Lespedeza capitata* Michx.; *L. repens* (L.) W.P.C. Barton; *Mimosa microphylla* Dryand. ex Sm. [*Schrankia microphylla* (Dryand.) J.F. Macbr.]; *Senna occidentalis* (L.) Link [*Cassia occidentalis* L.]; *Strophostyles helvula* (L.) Elliott; *Tephrosia virginiana* (L.) Pers.; *Trifolium incarnatum* L.; *Wisteria frutescens* (L.) Poir.
Fagaceae: *Quercus alba* L.; *Q. pagoda* Raf.; *Q. stellata* Wangenh.
Geraniaceae: *Geranium maculatum* L.
Hydrocharitaceae: *Najas filifolia* Haynes
Hypoxidaceae: *Hypoxis hirsuta* (L.) Coville
Iridaceae: *Iris cristata* Aiton; *Iris virginica* L.
Juglandaceae: *Carya aquatica* (Michx. f.) Nutt.; *C. ovalis* (Wangenh.) Sarg.; *Juglans nigra* L.
Juncaceae: *Juncus effusus* L.
Lamiaceae: *Prunella vulgaris* L.
Lentibulariaceae: *Utricularia inflata* Walter
Liliaceae: *Erythronium americanum* Ker Gawl.
Loganiaceae: *Spigelia mariliandica* (L.) L.
Malvaceae: *Sida spinosa* L.
Melanthiaceae: *Trillium cuneatum* Raf.; *T. decipiens* J.D. Freeman
Melastomataceae: *Rhexia virginica* L.
Moraceae: *Maclura pomifera* (Raf.) C.K. Schneid.
Onagraceae: *Ludwigia peruviana* (L.) H. Hara; *Oenothera biennis* L.; *O. fruticosa* L.; *O. speciosa* Nutt.
Ophioglossaceae: *Botrychium lunarioides* (Michx.) Sweet
Orchidaceae: *Goodyera pubescens* (Willd.) R. Br.
Orobanchaceae: *Agalinis obtusifolia* Raf.; *A. purpurea* (L.) Pennell; *Aureolaria virginica* (L.) Pennell
Osmundaceae: *Osmunda claytoniana* L.
Oxalidaceae: *Oxalis stricta* L.; *O. violacea* L.
Papaveraceae: *Sanguinaria canadensis* L.
Phytolaccaceae: *Phytolacca americana* L.; *P. rigida* Small
Phyrmaceae: *Mazus pumilus* (Burm. f.) Steenis
Pinaceae: *Cedrus deodara* Roxb. ex D. Don; *Pinus echinata* Mill.; *P. glabra* Walter; *P. palustris* P. Mill
Plantaginaceae: *Penstemon australis* Small
Poaceae: *Andropogon virginicus* L.; *Aristida spiciformis* Elliott; *Arundinaria tecta* (Walter) Muhl.; *Axonopus fissifolius* (Raddi) Kuhlm. [*A. affinis* Chase]; *Cenchrus echinatus* L.; *C. longispinus* (Hack.) Fernald [*C. pauciflorus* Benth.]; *C. tribuloides* L.; *Dichanthelium boscii* (Poir.) Gould & C.A. Clark; *D. oligosanthes* (Schult.) Gould var. *oligosanthes* [*Panicum scribnerianum* Nash]; *Digitaria filiformis* (L.) Köler; *Eleusine indica* (L.) Gaertn.; *Erianthus giganteus* (Walter) Muhl.; *Leptoloma cognatum* (Schultes) Chase; *Microstegium vimineum* (Trin.) A. Camus; *Pennisetum glaucum* (L.) R. Br.; *Phalaris arundinacea* L.; *Phragmites australis* (Cav.) Trin. ex Steud. [*P. communis* Trin.]; *Poa chapmaniana* Scribn.; *Schedonorus pratensis* (Huds.) P. Beauv. [*Lolium pratense* (Huds.) Darbysh.]; *Schizachyrium scoparium* (Michx.) Nash; *Setaria corrugata* (Elliott) Schult.; *S. glauca* (L.) Beauv.; *Sporobolus indicus* [L.] R. Br. [*S. poiretii* (Roem. & Schult.) Hitchc.]
Polygonaceae: *Persicaria hirsuta* (Walter) Small [*Polygonum hirsutum* Walter]; *P. lapathifolia* (L.) Gray [*Polygonum lapathifolium* L.]; *P. maculosa* Gray [*Polygonum persicaria* L.]; *P. punctata* (Elliott) Small [*Polygonum punctatum* Elliott]
Ranunculaceae: *Anemone berlandieri* Pritz.; *Aquilegia canadensis* L.; *Clematis virginiana* L.; *Ranunculus bulbosus* L.
Rhamnaceae: *Frangula caroliniana* (Walter) A. Gray [*Rhamnus caroliniana* Walter]
Rosaceae: *Crataegus punctata* Jacq.; *Fragaria virginiana* L.; *Potentilla canadensis* L.; *Rosa carolina* L.; *Rubus canadensis* L.; *R. hispidus* L.; *Spiraea ×arguta* Zabel
Rubiaceae: *Houstonia caerulea* L.; *H. tenuifolia* Nutt.; *Richardia scabra* L.
Salicaceae: *Populus deltoides* W. Bartram ex Marshall; *Salix nigra* Marshall
Sapindaceae: *Acer saccharum* Marshall
Sapotaceae: *Sideroxylon tenax* L.
Smilacaceae: *Smilax ecirrata* (Englem. ex Kunth) S. Watson; *S. herbacea* L.; *S. walteri* Pursh
Solanaceae: *Datura stramonium* L.; *Physalis heterophylla* Nees; *Solanum americanum* Mill.; *S. carolinense* L.
Verbenaceae: *Verbena brasiliensis* Vell.
Violaceae: *Viola tricolor* L.
Vitaceae: *Parthenocissus quinquefolia* (L.) Planch.

## ACKNOWLEDGMENTS

The first author thanks Kristian D. Jones, Lisa Krueger, Patrick Lynch, and Jeremy Rentsch for their enthusiastic assistance in the field; Lisa Krueger also prepared specimen labels and identified 17 grass and sedge specimens. Laura E. Lukas, (former) Collections Manager at GA, processed and databased the *Gaddy*, *Nelson*, and *Shepherd* shipments, identified 70 of those specimens, and supervised the GA Herbarium team of plant mounters. Brenda L. Wichmann, (former) Collections Manager at GA, facilitated verification of general vegetation community composition in a follow-up field trip to OCMU (7 August 2012), and Kaitlin T. Brotman assisted with preparation of Figure 1. We also greatly appreciate the invaluable support and cooperation of National Park Service personnel: Guy LaChine, Chief of Operations at Ocmulgee National Monument; Joe DeVivo, Network Coordinator; and Christina Wright, Data Manager. Biological Technicians Allen Huckabee, Stephen Friedt, and Tel Vaughn provided transportation to the Lamar Mounds for WBZ and field associates. J. Richard Carter, Curtis J. Hansen, Walter S. Judd, and Melanie Link-Pérez provided constructive criticisms of the manuscript. The fulfillment of this vouchered baseline survey was funded by National Park Service contract agreements J2114-07-0026 and J2114-09-0017 (W.B. Zomlefer, PI, and D.E. Giannasi, coPI).

## REFERENCES


Angiosperm Phylogeny Group (APG III). 2009. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG III. Bot. J. Linn. Soc. 161:105–121.

Burkholder, J.M., E.H. Allen, and C.E. Kinder. 2010. Assessment of water resources and watershed conditions in Ocmulgee National Monument, Georgia. Natural Resource Report NPS/SECN/NRR–2010/276. National Park Service, Natural Resources Program Center, Fort Collins, CO. http://nature.nps.gov/publications/nrpm/nrr.cfm#2010. Accessed 15 August 2012.

Cronquist, A. 1980. Vascular flora of the southeastern United States, volume 1. Asteraceae. University of North Carolina Press, Chapel Hill, NC.

David, J. 2012. Ocmulgee National Monument. Old Fields boundary study & environmental assessment [brochure]. Ocmulgee National Monument, National Park Service, Macon, GA.

DeVivo, J.C., C. Wright, M. Byrne, E. DiDonato, and T. Curtis. 2008. Vital signs monitoring in the Southeast Coast Inventory and Monitoring Network. Natural Resource Report NPS/SECN/NRR–2008/061. National Park Service, National Resource Program Center, Fort Collins, CO. http://nature.nps.gov/publications/nrpm/nrr.cfm#2008. Accessed 15 August 2012.

DeVivo, J.C., M.B. Gregory, T. Curtis, M.W. Byrne, and C. Wright. 2011. Southeast Coast Network climate science strategy. Natural Resource Report NPS/SECN/NRR–2011/436. National Park Service, National Resource Stewardship and Science, Fort Collins, CO. http://nature.nps.gov/publications/nrpm/nrr.cfm#2011. Accessed 15 August 2012.

Fancy, S.G., J.E. Gross, and S.L. Carter. 2009. Monitoring the condition of natural resources in US national parks. Environm. Monit. Assessm. 151:161–174.

Flora of North America (FNA) Editorial Committee, eds. 1993+. Flora of North America north of Mexico. 16+ vols. Oxford University Press, New York and Oxford.

Flora of North America (FNA) Editorial Committee, eds. 1993. Flora of North America north of Mexico, volume 2. Pteridophytes and gymnosperms. Oxford University Press, New York and Oxford.

Froeschauer, P. 1989. A vegetation history of Ocmulgee National Monument, Macon, Georgia. CPSU Technical Report No. 51. National Park Service Cooperative Unit, Institute of Ecology, University of Georgia, Athens, GA.

Gaddy, L.L. and J.B. Nelson. 2004. Vascular plant inventory of the Ocmulgee National Monument, Bibb County, Georgia. [Unpublished report.] National Park Service, Southeastern Regional Office, Athens, GA.

Georgia Department of Natural Resources (GA–DNR). 2010. Protected plants of Georgia. Georgia Wildlife Resources Division, Social Circle, GA. http://georgiawildlife.com/sites/default/files/uploads/wildlife/nongame/text/html/protected_species/Plants.html. Accessed 15 August 2012.

Georgia Department of Natural Resources (GA–DNR). 2011. Tracking list of special concern plants of Georgia. Nongame Conservation Section, Social Circle, GA. http://www.georgiawildlife.com/sites/default/files/uploads/wildlife/nongame/pdf/rare_species_data/Tracking_List_of_Special_Concern_Plants_of_Georgia.pdf. Accessed 15 August 2012.

Georgia Exotic Pest Plant Council (GA–EPPC). 2006. List of non-native invasive plants in Georgia. http://www.gaeppc.org/list.cfm. Accessed 15 August 2012.

Godfrey, R.K. 1988. Trees, shrubs and woody vines of northern Florida and adjacent Georgia and Alabama. University of Georgia Press, Athens, GA.

Godfrey, R.K. and J.W. Wooten. 1979. Aquatic and wetland plants of the southeastern United States. Monocotyledons. University of Georgia Press, Athens, GA.

Godfrey, R.K. and J.W. Wooten. 1981. Aquatic and wetland plants of the southeastern United States. Dicotyledons. University of Georgia Press, Athens, GA.

Hally, D.J., ed. 1994. Ocmulgee archaeology 1936–1986. University of Georgia Press, Athens, GA.

Hally, D.J. 1998. Ocmulgee site. In: G. Gibbon, ed. Archaeology of prehistoric native America: an encyclopedia. Garland Publishing, New York, NY. Pp. 600–601.

Isely, D. 1990. Vascular flora of the southeastern United States, volume 3, part 2. Leguminosae (Fabaceae). University of North Carolina Press, Chapel Hill, NC.

ITIS Steering Committee (ITIS). 2012. Integrated taxonomic information system. http://www.itis.gov/index.html. Accessed 15 August 2012.

Marsh, A. 1986. Ocmulgee National Monument: an administrative history. National Park Service, U.S. Department of the Interior, Washington, DC. http://www.nps.gov/history/history/online_books/ocmu/ocmu_admin.pdf. 15 August 2012.

National Park Service (NPS). 2005. Ocmulgee National Monument, Georgia [brochure]. National Park Service, Government Printing Office, Washington, D.C.

National Park Service (NPS). 2012a. Ocmulgee National Monument, Georgia [official homepage]. http://www.nps.gov/ocmu/index.htm. Accessed 15 August 2012.

National Park Service (NPS). 2012b. NPS stats. National Park Service Public Use Statistics Office, U.S. Department of the Interior, Washington, DC. http://nature.nps.gov/stats/index.cfm. Accessed 15 August 2012

National Park Service (NPS). 2012c. NPSpecies, certified species lists. Certified species list for vascular plants in Ocmulgee National Monument. National Park Service, Natural Resource Stewardship and Science, U.S. Department of the Interior, Washington, DC. https://irma.nps.gov/App/Species/Search. Accessed 15 August 2012.

National Park Service (NPS). 2012d. Inventory & monitoring program status report, 2012: Ocmulgee National Monument. National Park Service, Southeast Coast Network, Athens, GA. http://www.nps.gov/ocmu/naturescience/upload/OCMU_Program_Summary_2012-2.pdf. Accessed 15 August 2012.

National Weather Service. 2012. National Oceanic and Atmospheric Administration's National Weather Service. U.S. Dept. of Commerce, Silver Spring, MD. http://www.nws.noaa.gov/view/national.php?map=on. Accessed 15 August 2012.

Palmer, M.W. and J.C. Richardson. 2012. Biodiversity data in the information age: Do 21st century floras make the grade? Castanea 77:46–59.

Pope, G.D. 1956. Ocmulgee National Monument. Georgia. National Park Service Historical Handbook Series No. 24. National Park Service, U.S. Department of the Interior, Washington, DC. http://www.cr.nps.gov/history/online_books/hh/24/hh24toc.htm. Accessed 15 August 2012.

Puckett, D.L. 1997. Ocmulgee National Monument. A survey of natural resources. [Unpublished report.] Governor's Intern Program, Ocmulgee National Monument, National Park Service, Macon, GA.

Radford, A.E., H.E. Ahles, and C.R. Bell. 1968. Manual of the vascular flora of the Carolinas. University of North Carolina Press, Chapel Hill, NC.

Smith, A.R., K.M. Pryer, E. Schuettpelz, P. Korall, H. Schneider, and P.G. Wolf. 2006. A classification of extant ferns. Taxon 55:705–731.

United States Fish and Wildlife Service (USFWS). 2012. Species reports: listed plants. http://ecos.fws.gov/tess_public/pub/listedPlants.jsp. Accessed 15 August 2012.

Weakley, A.S. 2011. Flora of the southern and mid-Atlantic states, working draft of 15 May 2011. http://www.herbarium.unc.edu/flora.htm. Accessed 15 August 2012.

Wharton, C.H. 1978. The natural environments of Georgia. Bulletin 144. Georgia Department of Natural Resources, Atlanta, GA.

Wheeler, B.J. 2007. Ocmulgee National Monument. Cultural landscape report. National Park Service, Southeast Regional Office, Cultural Resources Division, Atlanta, GA. http://www.nps.gov/history/history/online_books/ocmu/ocmu_clr.pdf. Accessed 15 August 2012.

Williams, M. 1999. Lamar revisited. 1996 test excavations at the Lamar site. LAMAR Institute Publication 43, University of Georgia, Athens, GA. http://shapiro.anthro.uga.edu/Lamar/images/PDFs/publication_43.pdf. Accessed 15 August 2012.

Williams, M. 2008. Ocmulgee mounds. The new Georgia encyclopedia (on-line), Georgia Humanities Council and University of Georgia Press, Atlanta and Athens, GA. http://www.georgiaencyclopedia.org/nge/Article.jsp?id=h-2866&hl=y. Accessed 15 August 2012.

Williams, M. and G. Shapiro, eds. 1990. Lamar archaeology: Mississippian chiefdoms in the deep south. University of Alabama Press, Tuscaloosa, AL.

Wunderlin, R.P. and B.F. Hansen. 2000. Flora of Florida, volume 1. Pteridophytes and gymnosperms. University Press of Florida, Gainesville, FL.

Wunderlin, R.P. and B.F. Hansen. 2011. Guide to the vascular plants of Florida, ed. 3. University Press of Florida, Gainesville, FL.

Zomlefer, W.B., D.E. Giannasi, K.A. Bettinger, S.L. Echols, and L.M. Kruse. 2008. Vascular plant survey of Cumberland Island National Seashore, Camden County, Georgia. Castanea 73:251–282.

Zomlefer, W.B., D.E. Giannasi, A. Reynolds, and K. Heiman. 2012. Vascular plant flora of Chattahoochee River National Recreation Area, a conservation corridor from the Buford Dam to Atlanta, Georgia. Rhodora 114:50-102.